

1980 MODEL YEAR LIGHT-DUTY DIESEL VEHICLES

MANUFACTURER EXHAUST EMISSION FAMILIES (CUBIC INCH DISPLACEMENT) CARLINES COVERED	VEHICLE CARLINE REPRESENTED	EMISSION CONTROL SYSTEM	ENGINE DISP. & CARB	T R A N S M I S S I O N	EQUIV TEST WEIGHT (LBS)	AXLE RATIO	CERTIFICATION LEVELS			
							EXHAUST EMISSION (GRAMS/MILE)		EVAPOR. EMISSIONS (GRAMS)	
							HYDRO- CARBONS	CARBON MONOXIDE	OXIDES OF NITROGEN	HYDRO- CARBONS

VOLVO - FAMILIES CERTIFIED:ENGINE FAMILY TEST VEHICLES

6D (CONT.)

(EXHAUST DETERIORATION FACTORS FOR - FI / / / / / FAMILY 6D : 1.000 1.217 1.000 N/A)

GENERAL MOTORS - FAMILIES CERTIFIED:ENGINE FAMILY TEST VEHICLES

09J9Z

(348)

C10 P/U 2WD	C10 P/U 2WD	FI /NON/	/	/	/NON	348-FI	L-3	5000	3.42	0.71	2.1	2.1	N/A
C10 P/U 2WD	C10 P/U 2WD	FI /NON/	/	/	/NON	348-FI	L-3	5000	3.42	0.95	2.2	2.0	N/A
C15 P/U 2WD	C10 P/U 2WD	FI /NON/	/	/	/NON	348-FI	L-3	5000	2.76	0.97	2.2	2.1	N/A
C15 P/U 2WD													

(EXHAUST DETERIORATION FACTORS FOR - FI /NON/ / / / / FAMILY 09J9Z : 1.156 1.097 1.060 N/A)

IHC - FAMILIES CERTIFIED:ENGINE FAMILY TEST VEHICLES

5D-33T

(198)

SCOUT II 2WD	C TRAVELER 4WD	FI /EGR/	/	/	/NON	198-FI	C-4	4750	3.73	0.39	1.6	1.4	N/A
SCOUT II 4WD	C TRAVELER 4WD	FI /EGR/	/	/	/NON	198-FI	M-4	4750	3.73	0.45	2.2	1.6	N/A
TRAVELER 2WD													
TRAVELER 4WD													
TERRA P/U 4WD													
C SCOUT II 2WD													
C SCOUT II 4WD													
C TRAVELER 2WD													
C TRAVELER 4WD													
C TERRA P/U 4WD													

(EXHAUST DETERIORATION FACTORS FOR - FI /EGR/ / / / / FAMILY 5D-33T : 1.000 1.000 1.000 N/A)

VOLKSWAGEN - FAMILIES CERTIFIED:ENGINE FAMILY TEST VEHICLES

DP

(90)

C P/U 2WD	C P/U 2WD	FI / / / / /NON	90-FI	M-4	2375	3.90	0.32	1.0	1.2	N/A
P/U 2WD										

(EXHAUST DETERIORATION FACTORS FOR - FI / / / / / FAMILY DP : 1.000 1.108 1.058 N/A)

[FR Doc. 80-25974 Filed 8-26-79; 8:45 am]

BILLING CODE 6560-01-C

Federal Register

Wednesday
August 27, 1980

Part III

Department of the Interior

Bureau of Land Management

**Areas of Critical Environmental Concern;
Policy and Procedures Guidelines**

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

Areas of Critical Environmental Concern; Policy and Procedures Guidelines

AGENCY: Bureau of Land Management, Interior.

ACTION: Final guidelines.

SUMMARY: The Bureau of Land Management is issuing final guidelines for the implementation of provisions of the Federal Land Policy and Management Act of 1976 with regard to areas of critical environmental concern with the public lands administered by the Bureau of Land Management. The general policies and procedures contained in these guidelines will be incorporated into regulations and also will be combined with more specific policy and operational procedures as a part of a Bureau of Land Management manual. The final guidelines accompany this notice as Attachment A.

EFFECTIVE DATE: August 27, 1980.

ADDRESS: Director (430), Bureau of Land Management, U.S. Department of the Interior, 18th and C Streets NW., Washington, D.C. 20240.

FOR FURTHER INFORMATION CONTACT: Bruce R. Brown (202) 343-6064 at the above address, or other Bureau of Land Management (BLM) office locations listed in Attachment B to this notice.

SUPPLEMENTARY INFORMATION: The principal authors of these final guidelines are Bruce R. Brown and William J. Duddleson of the BLM Washington Office.

1. *Purpose and Objectives.* The purpose and objectives of these areas of critical environmental concern (ACEC) guidelines are to inform BLM field managers and the public alike of the policy and direction for the identification, designation, and management of areas within the public lands where special management attention is required to (a) protect important historic, cultural and scenic values, fish and wildlife resources and other natural systems and processes, and (b) protect human life and property from natural hazards.

2. *Authority.* The authority for this process is the Federal Land Policy and Management Act of 1976 (FLPMA)—(43 U.S.C. 1701 et seq.).

3. *Relationship to Planning.* The identification and designation of ACEC's will be done through the land-use planning process authorized by FLPMA, expressed in land-use plans called Resource Management Plans (RMP's). RMP's are developed for

geographic areas called Resource Areas, the Bureau's smallest planning area. Regulations for operation of this planning process were published in the Federal Register of August 7, 1979 (44 FR 46386-46401) as final rulemaking. These planning regulations contain general provisions regarding the ACEC process. Inquiries about the planning regulations may be directed to Robert A. Jones, Chief, Division of Planning, Inventory and Environmental Coordination, BLM (202), U.S. Department of the Interior, Washington, D.C. 20240; telephone (202) 343-5682.

4. *Response to Public Comment.* These final guidelines are designed to be responsive to public comments received on proposed guidelines for ACEC's published in the Federal Register of June 6, 1979, and BLM experience in field testing ACEC concepts. The comment period on the proposed guidelines ended on September 5, 1979. Comments were received from 117 reviewers: 20 from private individuals; 33 from developmental use-oriented interest groups such as oil and gas, mining, livestock, and forest product industries, and utility companies; 24 from conservation use-oriented interest groups; 4 from colleges and universities; 11 from State or local governments; 18 from BLM offices; and 7 from Federal agencies other than BLM. The following is a discussion of the major issues and concerns addressed in those comments.

a. *General Comments or Those Relating to More Than One Section.*

(1) *Concerns that ACEC Designation Under FLPMA Might Duplicate Other Existing Designations Under Other Laws.* Some reviewers felt that the ACEC guidelines are not necessary because the kinds of values or environmental resources that are relevant to the ACEC process mandated by FLPMA are adequately protected by other laws such as the Endangered Species Act, Antiquities Act, or Clean Water and Air Acts, or that an ACEC designation would duplicate existing BLM or Department of the Interior designations, such as Outstanding Natural Areas or Research Natural Areas, or designations of other agencies such as National Natural Landmarks.

The Bureau is required by FLPMA to identify, designate, and protect ACEC's on land it administers. Therefore, it is imperative that the BLM adopt procedures to implement the ACEC mandates of FLPMA. In the past, BLM or the Department of the Interior have designated special management areas under general authority to protect natural environment areas having cultural or scientific values, and to prevent excessive soil erosion and

destruction of plant life and wildlife habitat. Some of these previously designated areas—those that contain important natural or cultural resources—shall be considered for ACEC designation and if so designated will be managed under the specific authority of FLPMA. Some other existing types of designations are recognition-oriented only. That is, they recognize certain types of important environmental resources but do not provide (as the ACEC process does) a commitment to provide special management to protect the important resources or natural hazards on a continuing basis. Therefore, the final guidelines have been revised (Sec. VII, Relationships) to clarify this issue.

(2) *The ACEC Process Is Perceived by Some as Totally Preservation-Oriented.* Some concern was expressed that resources and values other than those specified in the ACEC provisions of FLPMA were improperly and unfairly considered in the draft guidelines. Some reviewers interpreted the ACEC process as being a "lock-up" program that will prevent many types of desired uses, particularly commodity production.

As part of FLPMA's legislative history, Senate Report 94-585 said "unlike wilderness area * * * (ACEC's) are not necessarily areas in which no development can occur." Therefore, as the ACEC guidelines reflect, a range of multiple-use activities, including specified kinds and degrees of development and commodity production, may take place within a particular ACEC, provided that the important environmental resources involved, or human property or lives, are not damaged or endangered.

(3) *Regulations "vs" Guidelines.* Some reviewers said BLM is required to issue regulations, rather than guidelines, on the ACEC process. Although the ACEC process is covered in the attached guidelines, general ACEC policy and procedures are contained in the Bureau's resource management planning regulations (43 CFR Part 1600) issued on August 7, 1979. These planning regulations will be amended to include more detail on the ACEC process as described in these final ACEC guidelines. Also, the ACEC process will be incorporated in future regulations regarding special areas management.

(4) *Editing.* Editorial adjustments have been made throughout the guidelines in response to comments that certain sections needed clarification, were superfluous, or that some material is no longer relevant.

b. *Comments Relating to Specific Sections.*

(1) *Sec. II.—Definitions.* Some reviewers requested a number of changes, ranging from the addition of many new definitions to the deletion of several terms. As a result, the definitions section was carefully reexamined and a number of changes were made. Definitions were added for:

"Potential ACEC"—This term was necessary in order to give significance to an important environmental resource or natural hazard that has been found to meet the identification criteria and is pending an ACEC designation decision. A District Manager may initiate temporary special management measures for a potential ACEC.

"Protect"—Because the term is used throughout the guidelines, a definition is included.

"Management Framework Plan"—Because the term is used throughout the guidelines, a definition is included.

"Definitions were deleted for:

"Historic Value or Resource"—This term is included within the definition for "Cultural Value or Resource."

Definitions were modified for:

"Fish and Wildlife Resource"—Changes were made for clarification.

"Withdrawal"—This definition was modified to conform to the definition currently proposed as a revision of the Bureau's regulations on Land Withdrawals and Revocations (43 CFR 2300).

(2) *Sec. III.—Identification Criteria.*

In response to comments, two proposed identification criteria, "criticalness" and "protectability," have been deleted. Some factors that previously were proposed for determining criticalness (i.e., the degree to which a resource is fragile, sensitive, rare, irreplaceable, endangered, or threatened) are now included among factors of the criteria, "importance." "Protectability" has been eliminated as an identification criteria because we feel that the importance of an environmental resource is to be determined solely by the inherent qualities of the resource itself, and that the identification phase is not the proper step in the ACEC process to consider protectability.

(3) *Sec. IV.—Designation Considerations.* Several reviewers expressed concern it appeared BLM was attempting to designate non-BLM lands as ACEC's. To clarify this, additional text has been added to the sections on Designation Factors and the identification Phase (V. A.).

(4) *Sec. V. A.—Identification Phase.*

(a) In response to several comments, this section has been amended to clarify the fact that any member of the public may at any time nominate

environmental resources or natural hazards for consideration for ACEC identification.

(b) Another step that has been added for clarification is that of "Identification Finding" (Sec. V. A. 4). This is the step when the District Manager makes a finding that the area in which an "identified environmental resource or natural hazard" is located becomes a "potential ACEC" (i.e., a finding that the identification criteria are met). This new material makes it clear that the District Manager may apply temporary special management actions designed to assure that those qualities that make the resource important are not damaged or otherwise subjected to adverse change pending an ACEC designation decision. Such temporary management is discussed in Section V. B.

(5) *Sec. V. C.—Designation Phase (Sec. V. B. in the proposed guidelines).*

(a) Several reviewers suggested that the Bureau does not have the discretion to decide whether or not a potential ACEC should be designated. These reviewers said that FLPMA requires the BLM to identify ACEC/Type values, resources, and hazards, and, if they meet the identification criteria, they must be designated and managed within an ACEC. These reviewers interpreted FLPMA to mean that alternative uses for an area with identified ACEC values should not even be considered—that ACEC designation automatically is in the best public interest in every instance.

We feel the Act specifically separates the identification and designation of ACEC's. The identification phase is developed from Sec. 201(a) of the Act that requires the identification of ACEC-type values, resources, or hazards during the inventory of the public lands. "Identification" is a finding by a BLM District Manager that a particular area contains environmental resources or natural hazards that meet the criteria of relevance and importance and this makes the area eligible for subsequent consideration for designation as an ACEC. Identification is a matter for professional evaluation, and will be made on the basis of the values or qualities of the resource or hazard itself, without consideration of alternative potential uses.

The designation phase is developed from Sec. 202(c) of the Act, which requires that priority be given to the designation of ACEC's during the development and revision of land-use plans. "Designation" of an ACEC is a management decision that is made after weighing the public interest to be served by (1) ACEC designation and by (2) potential alternative uses for the

resource or combination of resources involved.

Further, these two phases of the ACEC process—identification and designation—are distinctly separable because the Act (Sec. 201(a)) also says that "identification of such areas [potential ACEC's] shall not, of itself, change or prevent change of the management or use of public lands." Thus, there may be "potential ACEC's"—where an important ACEC-type resource has been identified—that will not be protected through ACEC designation.

(b) Some reviewers' comments indicated a misunderstanding of how the ACEC process functions as part of the resource management planning process. This is understandable because the final planning regulations (which considered the ACEC process in more detail than the draft planning regulations) were not published until a month after the proposed ACEC guidelines were published. The final ACEC guidelines have been revised to include a section, "Designation Consideration through the Planning Process" (Sec. V. C. 1.). This revision and the fact that the ACEC process is now included in the planning regulations should clarify this concern.

(c) Some reviewers expressed concern that District Managers should not have the responsibility to designate ACEC's. The Bureau's policy regarding approval of an ACEC designation, which is the same for any discretionary decision involved in an RMP, is that before the District Manager approves an RMP, or other land-use plan (or revision of such plans), the State Director must concur in advance of that approval. That is, ACEC designation decisions will not become final until after the State Director concurs with the District Manager's proposed decision. Further, in cases where the State Director considers that a resource in a proposed ACEC may be of multi-State, national or international significance, the State Director will advise the BLM Director, who may make a finding as to significance and also may concur in the proposed designation decision. New language has been added to provide that the Secretary of the Interior, also may concur in proposed ACEC designation decisions that would involve or affect environmental resources of more-than-State significance.

(d) As part of the designation phase, some reviewers suggested that the ACEC process include a benefit/cost analysis complete with a mineral survey. After careful consideration, we determined that a separate benefit/cost analysis is not appropriate for ACEC

designation decisions. As part of the RMP process, District Managers consider alternative resource uses both during the preparation of the plan and as part of an associated environmental impact statement (EIS) or specific environmental analysis (EA). Mineral data is considered as part of both of these processes.

While we recognize that the changes made in these final ACEC guidelines will not meet all of the concerns raised by all of those who reviewed the proposed guidelines, we believe that the final guidelines constitute a good start in carrying out a potentially significant mandate of the Federal Land Policy and Management Act.

We urge all persons who are interested in the future of public-lands resources to continue to take part in developing and implementing this promising special management process—as the forthcoming ACEC amendments to the BLM resource management planning regulations are proposed for public review, as BLM Manual material on the ACEC process is developed, and as ACEC identification and designation decisions begin to be proposed by our District Managers in the field.

Dated: August 18, 1980.

Frank Gregg,
Director, Bureau of Land Management.

Attachment A.—Areas of Critical Environmental Concern (ACEC's) Final Guidelines

U.S. Department of the Interior, Bureau of Land Management

Areas of Critical Environmental Concern

Final Guidelines

I. Summary

A. Purposes and Objectives

B. Authority and Mandate

1. Definition
2. Identification Priority and Effect
3. Designation Priority and Process
4. Special Management Priority

C. Basic Concepts

1. Protective Management Policies Apply to All Public Lands
2. ACEC's Are Special Places Within the Public Lands
3. The ACEC Process Is Part of Multiple-Use Management
4. Development May Occur in Some ACEC's
5. Each ACEC's Special Management Requirements Are Site-Specific
6. The ACEC Process Is Part of the Planning Process
7. Identification and Designation Are Separate Steps
8. An ACEC Designation Constitutes a Management Commitment
9. ACEC Designation May Complement Other Forms of Management

10. Public-Interest Determinations Are Required for ACEC Designation and Revision
11. Opportunity for Public Involvement Is Provided at Each Step

II. Definitions

III. Identification Criteria

A. A Professional Evaluation

B. Applying the Criteria

1. Relevance
2. Importance

C. Special Significance Information

D. Illustrative Examples

1. Cultural Value or Resource
2. Scenic Value or Resource
3. Fish or Wildlife Resource
4. Natural System or Process
5. Natural Hazard

IV. Designation Considerations

A. A Management Decision

B. Designation Factors

1. Relevant Law
 - a. Factors Specified in FLPMA
 - b. Factors in Other Federal Law
2. Statements of Executive Policy
3. Policies of Other Governmental Entities
4. Expressions of Public Concern

V. Process

A. Identification Phase

1. Information Collection
2. Analysis and Evaluation
3. Review of the Analysis and Evaluation
4. Identification Finding

B. Temporary Management

C. Designation Phase

1. Designation Consideration Through the Planning Process
 - a. When an Approved Management Plan Exists
 - b. When No Approved Management Plan Exists

2. Consideration of Alternatives
3. Preparation for Designation Decision
 - a. ACEC Plan Element

- (1) Name
- (2) Management Objectives
- (3) Description
- (4) Special Management Requirements
- (5) Public Comment

4. Designation
 - a. Special Provisions for Resources of More-than-State Significance
 - b. Public Notice
 - c. Decision Not to Designate

D. Management Phase

1. Management Responsibilities
2. Reporting Responsibilities

E. Programming

F. Revision of a Designation

G. Public Involvement

1. Public Participation Guidance
2. Administrative Review

VI. Responsibilities

A. District Managers

B. State Directors

C. Director

D. Coordination

VII. Relationships

A. Effect of ACEC Designation

B. Relationship to Other Allocation Designations

C. Relationship to Recognition Designations

D. Withdrawals

E. Integration With Other Management Actions

Final Guidelines—Areas of Critical Environmental Concern

I. Summary

A. Purposes and Objectives. These guidelines set forth general policy and procedures for identifying, designating and giving special management attention to Areas of Critical Environmental Concern within the public lands administered by the Secretary of the Interior through the Bureau of Land Management (BLM). The purpose of this document is to provide general guidance and direction to BLM personnel and information to the public to enable all interested persons to participate effectively in this aspect of managing the public lands. The information contained in these guidelines will be incorporated into regulations dealing with the identification, designation, and protection of special management areas and into the BLM Manual section dealing with detailed procedural guidance for special management areas.

The objectives of the process covered by these guidelines are to identify, designate and manage areas within the public lands where special management attention is required to protect (a) important historic, cultural, and scenic values, fish and wildlife resources and other natural systems and processes, and (b) human life and property from natural hazards.

B. Authority and Mandate. The Federal Land Policy and Management Act of 1976 (the Act, or FLPMA) contains the following key provisions regarding Areas of Critical Environmental Concern:

1. **Definition.** An "Area of Critical Environmental Concern" (ACEC) is an area "within the public lands where special management attention is required (when such areas are developed or used, or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards" (Sec. 103(a));

2. **Identification Priority and Effect.** Identification of potential ACEC's shall be given "priority" in the "inventory of all public lands and their resource and other values," and identification "shall not, of itself, change or prevent change of the management or use of public lands" (Sec. 201(a));

3. *Designation Priority and Process.* The designation of ACEC's shall be given "priority" in "the development and revision of land use plans" (Sec. 202(c)(3)), and

4. *Special Management Priority.* The protection of ACEC's shall be given "priority" (Sec. 202(c)(3)) in applying the required special management attention.

C. *Basic Concepts.* 1. *Protective Management Policies Apply to All Public Lands.* In FLPMA Congress declared a basic policy directing "management, protection, development, and enhancement of all the public lands" to protect certain environmental values. The Act also says:

—That the public lands shall "be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition, that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use" (Sec. 102(a)(8));

—That "in managing the public lands, "BLM" shall, by regulations or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands" (Sec. 302(b));

—That management shall be under principles of multiple use and sustained yield (Secs. 102(a)(7), 202(c)(1), and 302(a)), and environmental values are incorporated in the Act's definition of multiple use (Sec. 103(c)).

—Thus, Congress has established an overall policy framework, within a context of multiple use, sustained yield and protection of environmental quality, for management of all of the public lands.

2. *ACEC's Are Special Places Within the Public Lands.* In addition to establishing in law such basic protective management policies that apply to all the public lands, Congress has said that "management of national resource lands [public lands] is to include "giving special attention to the protection of ACEC's, for the purpose of ensuring "that the most environmentally important and fragile lands will be given * * * early attention and protection" (Senate Report 94-583, on FLPMA). Thus, the ACEC process is to be used to provide whatever special management is required to protect those environmental resources that are most important, i.e., those resources that make certain specific areas special places, endowed by nature or man with characteristics that set them apart. In addition, the ACEC process is to be used

to protect human life and property from natural hazards.

3. *The ACEC Process Is Part of Multiple-Use Management.* The ACEC identification, designation and management process is an integral part of BLM's on-the-ground multiple-use planning and management processes. Through the ACEC process, BLM has a mandate to both:

(a) provide special management attention that will protect important environmental resources, and protect human life and property from important natural hazards, and

(b) do this without unnecessarily or unreasonably restricting users of these lands from uses that are compatible with that protection.

4. *Development May Occur in Some ACEC's.* As the Senate Committee Report on FLPMA (Senate Report 94-583) said, "Unlike wilderness areas * * * (ACEC's) are not necessarily areas in which no development can occur. Quite often, limited development, when wisely planned and properly managed, can take place in these areas without unduly risking life or safety or permanent damage to historic, cultural or scenic values or natural systems or processes." Thus, a particular ACEC designation may provide for a range of multiple-use activities, including specified kinds and degrees of development and commodity-production activities, provided that the important environmental resources within that area, or human property or lives, are not damaged or endangered.

5. *Each ACEC's Special Management Requirements Are Site-Specific.* The special management requirements for each ACEC will be designated individually to fit the resources or hazards within each particular geographic area involved. Since it is unlikely that the resources or hazards within any two ACEC's will be identical, it is unlikely that all the specifics of the special management requirements of any ACEC's will be identical. Each ACEC is, in effect, to be handcrafted area by area, and an individual special management prescription designated to (a) protect the particular important environmental resources that have been identified within the area, or (b) to protect people and property from the particular hazards the area contains. Thus, the users and activities which may take place within any particular ACEC will be those that are compatible with an supportive of the particular resources which that ACEC is being designated to protect, or those that are consistent with providing protection from a particular natural hazard.

6. *The ACEC Process Is Part of the Planning Process.* Identification of

potential ACEC's and designation of ACEC's will be done through BLM's on-the-ground planning process, in accord with BLM's procedures for preparing, approving, and revising Resource Management Plans. This planning process incorporates environmental analysis pursuant to the National Environmental Policy Act. An ACEC is designated through approval by a BLM District Manager of a Resource Management Plan, or of an amendment to such a plan, for a Resource Area—BLM's basic geographic planning and management unit. This designation decision is made after review and concurrence by the BLM State Director. Where a proposed ACEC contains an environmental resource of multi-state, national, or international significance, concurrence by the BLM Director and, in some cases by the Secretary, also may be required.

7. *Identification and Designation Are Separate Steps.* The identification step in the ACEC process precedes and is separate from the designation step. The Act makes a distinction between (a) the identification of an important environmental resources or natural hazard, and (b) the protection of that resource, or of life or safety, through designation of its location as an ACEC. As the Act says, ACEC identification "shall not, of itself, change or prevent change of the management or use of public lands" (Sec. 201 (a)). Thus, there may be locations where an environmental resource or natural hazard has been identified as a potential ACEC that, nevertheless, will not be protected through ACEC designation.

"Identification" of an environmental resource or natural hazard—i.e., a finding that criteria of relevance and importance are met—makes the place where such a resource or hazard is located a potential ACEC and eligible for subsequent consideration for designation as an ACEC. Identification is a matter for professional evaluation, and will be made on the basis of the values or qualities of the resource or characteristics of the hazard itself, without consideration of alternative potential uses.

"Designation" of an area as an ACEC is a management decision that will be made after weighing the public interest to be served by ACEC designation and potential alternative uses for the resource or combination of resources involved. This decision shall be made after consideration of all applicable factors, including factors specified in law and executive policy, policies of other governmental entities, and expressions of public concern.

The decision whether an important environmental resource, in whole or in part, is to be protected through ACEC designation, protected through another means, or not protected, will be made after careful consideration of anticipated effects of alternative potential uses, in accord with the principle of multiple-use management as defined in FLPMA, and all other relevant law and policy. The decision shall provide for that use or combination of uses which best serves the public interest.

8. *An ACEC Designation Constitutes a Management Commitment.* Upon designation of an ACEC, its special management requirements will control BLM's management program for the area and no activity incompatible or inconsistent with those requirements shall be allowed or undertaken by BLM. In FLPMA the Congress mandated not only the identification and designation, but also the protection, of ACEC's. Thus, the ACEC process is more than a recognition program; it is a process for (1) determining what special management attention certain important environmental resources or hazards require, and then for (2) making a commitment that this special management will continue to be provided on a priority basis in accord with Sec. 202(c)(3) of the Act. In addition to protecting important environmental resources from damage or loss, whenever feasible the purposes of this special management attention are to affirmatively enhance such resources.

An ACEC's special management requirements may include two kinds of measures: (1) those which BLM has authority to adopt, carry out, and enforce, and (2) those that are a basis for a request or recommendation to others for action because BLM does not have all of the necessary authority. Insofar as an ACEC's special management requirements are within BLM's authority to adopt, carry out, and enforce, and ACEC designation constitutes a Bureau commitment that those requirements will be strictly adhered to. Where an ACEC's special management requirements call for or recommend an action beyond BLM's direct authority to adopt or implement, an ACEC designation constitutes a commitment that BLM will do everything within its authority and means to secure the adoption of the measure and its implementation. An example of such a measure could be a cooperative agreement with a State wildlife agency, or withdrawal of an area of the public lands from certain specified activities, such as mining

activity under the General Mining Law of 1872. An ACEC designation is not a withdrawal; under FLPMA, withdrawal authority is retained by the Secretary of the Interior and has not been delegated.

9. *ACEC Designations May Complement Other Forms of Management.* ACEC and other special management area designations are not necessarily mutually exclusive. An ACEC may overlay another form of designation, in whole or in part, so as to complement the management provided through the other form—for example, a unit of the National System of Wild and Scenic Rivers, within the public lands.

10. *Public-Interest Determinations Are Required for ACEC Designation and Revision.* Designation of ACEC's and any revisions of designations are made on the basis of a determination as to which of the alternative possible uses for the important environmental resources involved will best serve the public interest. These designation decisions are made through adoption or amendment of a Resource Management Plan (RMP), in an open process that includes environmental analysis and opportunity for public review. Once made, an ACEC designation decision cannot be changed except by revision through a subsequent public-interest determination that is made through the same open process.

No action that is inconsistent with the terms of an ACEC designation or that would adversely impact an ACEC-protected resource will be permitted unless the District Manager finds, through the plan amendment process, that the public benefits of such an action outweigh the public benefits of continuing the ACEC protection, and that there is no feasible alternative to the proposed inconsistent action. In any such case, the BLM State Director would have to concur prior to the approval of such a plan amendment. In addition, where an environmental resource of multi-State, national, or international significance is involved, the BLM Director, and in some cases the Secretary, also would have to concur before such an amendment could be approved.

11. *Opportunity for Public Involvement Is Provided at Each Step.* Opportunity for public participation at each phase of the ACEC process will be provided by BLM officials, pursuant to all relevant law and executive policy, including provisions of FLPMA and the National Environmental Policy Act, the Department of the Interior's policy on public participation in decisionmaking, and BLM's resource management planning regulations.

II. Definitions

Area of Critical Environmental Concern (ACEC): An area "within the public lands where special management attention is required (when such areas are developed or used, or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards" (FLPMA Sec. 103(a)).

Cultural Value or Resources. Nonrenewable evidence of human endeavor, such as found in places, structures, objects, trails or other forms of evidence. Such a resource may include (1) physical remains or natural features important in or representative of human activity; (2) areas where important or representative human events occurred even though tangible remains may be absent, or (3) areas of socio-cultural concern, including those of traditional significance to American Indians, Aleuts, Eskimos, or other groups. Cultural values or resources may include either prehistoric or historic values or resources from the earliest evidences of humankind to the present day. (Illustrative example, III.D.1, below.)

Designation. The decision by a BLM District Manager as part of a resource management planning process, made through approval of a Resource Management Plan, a Management Framework Plan, or of an amendment to such plans, that describes and adopts the special management attention required within a particular ACEC.

Environmental Resource. One of more of the kinds of resources eligible for special management through ACEC designation—i.e., a fish or wildlife resource, or other natural system or process, or a historic, cultural, or scenic value or resource. As used here, the term, "environmental resource," refers collectively to one or more than one of these kinds of resources, systems, processes, or values.

Fish and Wildlife Resource. One of more species or population of animals including eggs or progeny, whether raised in captivity or not, that normally is found in a wild state, together with the elements of its habitat needed to normally and naturally maintain a healthy life and perpetuate its population. (Illustrative example, III.D.3., below.)

Historic Value or Resource. (See definition of Cultural Value or Resource, above.)

Important. (See definition in Identification Criteria, III.B.2., below.)

Life and Safety. "Life" means the life of any human. "Safety" refers to the protection of human life or the protection of property, and means reasonable freedom from significant threat, risk or danger of serious injury, or of significant damage to or loss of property.

Management Framework Plan (MFP). The Bureau's basic planning decision document (land-use plan) prior to the adoption of a Resource Management Plan. An approved MFP will guide management actions until superseded by an approved RMP. (Refer to definition of Resource Management Plan.)

Multiple Use. The management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services, and the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific, and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment, with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.

Natural Hazard. A natural characteristic of land or water resources or areas that (1) constitutes conditions significantly dangerous, or potentially significantly dangerous, to human life, or property, or that (2) would be significantly dangerous to life or the safety of property if development or other activity were permitted. Such a hazard may be either existing or considered likely to occur in the future. (Illustrative example, III.D.5, below.)

Natural System or Process. Living or nonliving parts of the natural environment, considered either as discrete individual elements or as group or classes of such individual elements, and the behaviors, actions, and interactions of such elements or changes to them. The central features of such a system or process may, for example, be communities of living plants, and vital components of their habitat, or such non-living structures as geological formations, which exemplify a natural

process or system. (Illustrative example, III.D.4, below.)

Potential ACEC. An area within which a relevant and important environmental resource or natural hazard has been identified is a "potential ACEC" until a decision is made to designate or not to designate the area an ACEC.

Priority. A preferential rating or ranking, or prior attention in terms of time and precedence, for allocation of services or resources in limited supply.

Protect. To defend or guard against damage or loss to the important environmental resources of a potential or designated ACEC. This includes both damage that can be restored over time and that which is irreparable. With regard to a natural hazard, protect means to prevent the loss of life or injury to people, or loss or damage to property.

Public Lands. "Any land and interest in land owned by the United States within the several States and administered by the Secretary of the Interior through the Bureau of Land Management * * * except—(a) lands located on the Outer Continental Shelf; and (b) lands held for the benefit of Indians, Aleuts, and Eskimos" (FLPMA, Sec. 103 (e)).

Public Participation. "Public" means affected or interested individuals, including representatives of organizations and interest groups, and officials of local, State, Federal, and Indian tribal governments. "Participation" means systematic opportunity for members of the public to know about the express opinions on possible BLM actions and policies, and to know that their views are considered in shaping decisions and become part of the record of the decisionmaking process. "Public participation" also means "public involvement," as defined in FLPMA, Sec. 103(d): opportunity for participation by affected citizens in rulemaking, decisionmaking, and planning with respect to the public lands, including public meetings or hearings held near affected lands, or advisory mechanisms, or other procedures as may be necessary to provide public comment in a particular instance.

Relevant. (See definition of "relevance" in Identification Criteria, III.B.1, below.)

Resource Area. A geographic portion of a BLM District, and, in most instances, the administrative unit for which Resource Management Plans are prepared and maintained.

Resource Management Plan (RMP). The basic decision document of BLM's resource management planning process,

used to establish allocation and coordination among uses for the various resources within a Resource Area. Identification of potential ACEC's is normally done through this planning process, and ACEC designation is done through approval (adoption) of such a plan or plan amendment. An RMP is a "land-use plan" prescribed by Sec. 202 of the Act. RMP regulations were published in the Federal Register on August 7, 1979 (44 FR 46386-46401). (Refer to definition of Management Framework Plan.)

Scenic Value or Resource. A scenic resource consists of land, water, vegetation, wildlife, structures, or other visually perceivable aspects of a landscape, vista, or scene—natural, created by human activity, or both. The value of a scenic resource includes its scenic quality, scarcity, and degree to which people have interest in, or concern about, visual changes to it. (Illustrative example, III.D.2, below.)

Secretary. The Secretary of the Interior.

Special Management Attention. Actions or other measures considered necessary or appropriate to protect, enhance, or restore an important environmental resource within an ACEC, or to protect human life or property from an important natural hazard within an ACEC.

Withdrawal. The withholding, subject to valid existing rights, of an area of Federal land from settlement, sale, location, or entry under some or all of the general land laws, including the mining laws, for the purpose of limiting activities under those laws in order to maintain other public values in the area or to reserve the area for a particular public purpose or program.

III. Identification Criteria

A. A Professional Evaluation. Two identification criteria derived from the Act will be applied in identifying an environmental resource or a natural hazard to determine whether the area in which it is located is a potential ACEC. Both of the criteria—Relevance and Importance—must be met in every case. An identification determination is a professional evaluation based on the inherent or intrinsic qualities of resources or hazards, either singly or in combination, without consideration of alternative possible uses for the resource or resources.

B. Applying the Criteria. 1. Relevance. An environmental resource or natural hazard can be found to be "relevant" if it is one of the kinds of resources, values, systems, processes, or hazards included in the Act's definition of an ACEC.

2. *Importance.* An environmental resource can be found to be "important" if it has qualities that give it (a) special worth, consequence, meaning, distinctiveness or cause for concern especially when compared to any like or similar resources, and, generally, (b) more-than-local significance. Qualities or circumstances that make such a resource fragile, sensitive, rare, irreplaceable, endangered, threatened, or vulnerable to adverse change may be among the causes for concern. A natural hazard can be found to be "important" if it is a significant threat, either existing or potential, to human life or property.

Evidence of importance may be found, for example, in the judgment of persons qualified by knowledge, training, or experience to assess these qualities.

In addition, evidence of more-than-local significance may be found, for example, in expressions by more than one local government, a State government, or citizen's interest groups, or a substantial number of persons residing beyond the locality in which the resource is located. Although the requirement of more-than-local significance is the general rule, there may be exceptional cases where evidence of a resource's importance must rely largely or exclusively on the judgment of a local government or local community—because, for example, there may be no like or similar entities elsewhere with which that particular resource may be compared. A District Manager may find that there is compelling reason that a resource of only local concern is "important" for ACEC purposes. With respect to natural hazards, reported hazards data from national systems for disaster preparedness, geologic hazards reported by the U.S. Geological Survey, or standards for water-related hazards as established by the U.S. Water Resources Council, may provide evidence of importance.

C. *Special Significance Information.* In applying the criteria specified above (III.B), information developed by international, Federal or State programs may be useful evidence of importance. For example, information about historic, cultural, or scenic values or "natural system or process" resources may be available through such sources as the Federal Committee on Ecological Reserves; the National Heritage Program, administered by the Heritage Conservation and Recreation Service (HCRS); the National Register of Historic Places, and registers of natural and historic landmarks, also administered by HCRS; and the UNESCO Man and the Biosphere

Program, coordinated in the U.S. through the Department of State. State government historic or natural heritage programs, universities, and other research, education, and public interest organizations may also provide useful information for ACEC purposes. Data obtained by BLM through such State, national, international, or other such programs should be given special consideration in the ACEC process.

Some of these organizations have programs to identify scientifically significant examples of the diversity of natural ecosystem types; sites illustrating genetic, biotic, or geological diversity, or outstanding examples of major types of natural systems or natural processes. If an area is proposed for ACEC designation that is considered an appropriate addition to such a recognized program, evidence of qualification for the program should be included in the documentation. Where an official or generally recognized classification system exists for the type of environmental resource involved, how the resource fits the classification system should be described.

D. *Illustrative Examples.* Examples of some of the characteristics or qualities of the kinds of environmental resources or natural hazards that conceivably could meet these criteria are noted below for illustrative purposes only.

1. *Cultural Value or Resource:* Could be an archeologically significant area of prehistoric Indian habitation that is vulnerable to loss or damage because of easy accessibility; or physical evidence of an historically significant event or period in American history.

2. *Scenic Value or Resource:* Could be an area that combines outstanding scenic quality, relative scarcity, and/or high visual sensitivity that requires special attention if protection of these qualities is to be assured.

3. *Fish or Wildlife Resource:* Could include an important or critical habitat for a species that is endangered, threatened, sensitive, or of special importance; an important area of historic range suitable for reintroduction of such a species, or an area necessary for reproduction, rearing, or seasonal use in order to maintain a viable population level of such a species.

4. *Natural System or Process:* Could be a significant natural system or process that is being subjected to decisive adverse change or alteration, or that without special management attention is susceptible to decisive change in its natural condition or functioning. Also could include a key component essential to the life cycle or survival of such a living natural system or process; an important habitat for a

plant species or community, particularly one that is endangered, threatened, sensitive, or of special importance; or an important occurrence of a rare or relict resource, or a nonliving geological feature, paleontological phenomena or land form that exemplifies a natural system or process.

5. *Natural Hazard:* Kinds of hazards that conceivably could be appropriate for ACEC designation include significant avalanche areas, areas subject to periodic dangerous flooding, areas with unstable soil mantles such as steep slopes vulnerable to landslides, seismic zones, dangerous cliffs or other unsafe areas, particularly where human visitation is likely. Some types of hazards, such as abandoned mine shafts, are not relevant for ACEC identification because they are manmade rather than natural. However, a hazard caused initially or triggered by human action may be considered "natural" for ACEC purposes if it subsequently has become part of a natural process and significantly endangers human life, health or property.

IV. Designation Considerations

After one (or more) environmental resource or natural hazard has been found to meet the identification criteria (III, above), the decision whether to designate the area in which it is located an ACEC will be made through the RMP process.

A. *A Management Decision.* BLM officials have the management responsibility to decide whether or not to protect an environmental resource, or to provide protection from a natural hazard, through ACEC designation and the resultant special management attention. This decision process involves weighing the relative public interest in any benefits and adverse effects that would result from ACEC designation, and in any benefits and adverse effects that would result from non-designation. The designation decision shall be based on consideration of all applicable factors, including those outlined below.

B. *Designation Factors.* 1. *Relevant Law.* Some of these factors are set forth in law, including:

a. *Factors Specified in FLPMA.*

(1) The primary designation factor is the mandate of the Act that BLM "shall * * * give priority to the designation and protection of areas of critical environmental concern" (Sec. 202(c)(3)). Other factors set forth in FLPMA include consideration of both "present and potential uses of the public lands"; consideration of "the relative scarcity of the values involved and the availability of alternative means (including

recycling) and sites for realization of those values"; weighing of "long-term benefits to the public against short-term benefits," and providing "for compliance with applicable pollution control laws, including State and Federal standards or implementation plans" (Sec. 202(c)).

In addition, the Senate Report on FLPMA (Senate Report 94-583) noted that the Act's ACEC provisions respond, in part, to three recommendations of the Public Land Law Review Commission: Create and preserve a natural area system on the public lands for scientific and educational purposes; identify and protect areas of national significance on the public lands; and classify lands for environmental quality enhancement and maintenance.

Therefore, areas with high value or potential for expanding scientific knowledge or for education, particularly those with existing baseline data or special instrumentation or plans for research, or where special management is needed to assure continuity and integrity in long-term research programs, should be considered for ACEC designation.

(2) Another basic policy established in FLPMA is that the public lands shall be managed by observing the principle of multiple use unless otherwise specified by law (Secs. 102(a)(7), 202(c)(1), and 302(a)). Thus, the multiple-use principle is to be used in making ACEC designation decisions. To the extent that any otherwise appropriate use may take place within an ACEC without damaging or endangering an environmental resource that is the reason for ACEC designation, or without endangering life or property, such a use may be permitted as long as that use is consistent with the special management requirements of the ACEC.

b. Factors in Other Federal Law. Other Federal law that may be applicable to a particular ACEC decision may include such statutes as the National Environmental Policy Act of 1969, Antiquities Act, Archeological Resources Protection Act of 1979, Taylor Grazing Act, Federal Water Pollution Control Act, Clean Water Act, National Historic Preservation Act, Clean Air Act, Mining and Minerals Policy Act, Endangered Species Act, Sikes Act, General Mining Law of 1872, Public Rangelands Improvement Act of 1978, and Surface Mining Control and Reclamation Act.

2. Statements of Federal Executive Policy. Executive direction and guidance may be expressed in Presidential statements and executive orders, Secretarial policy statements and orders, and BLM directives. Relevant executive orders may include, for

example, E.O. 11514 (1970), concerning protection and enhancement of environmental quality; E.O. 11593 (1971), concerning protection and enhancement of cultural and historic resources on Federal land; E.O. 11644 (1972) as amended by E.O. 11989 (1977), concerning management of off-road vehicles on public lands; E.O. 11988 (1977), concerning flood plain management; E.O. 11990 (1977), concerning wetlands protection, and the President's 1979 Environmental Message. Policy guidance from the Secretary, BLM Director and State Directors will be provided from time to time for District Managers and others preparing Resource Management Plans (see Sec. 1601.1 (b) and (c) of BLM's planning regulations).

3. Policies of Other Governmental Entities. ACEC designation decisions will take into account officially adopted resource-related policies, plans, and programs of State and local governments, Indian tribal governments and other Federal agencies, in accord with Sec. 202(c)(9) of the Act and Sec. 1601.4 of BLM's planning regulations, as well as uses of nearby private lands.

Where public lands administered by BLM are adjacent to or intermingled with lands administered by other Federal agencies or with non-Federal lands, such as inholdings of private or State lands, ACEC designation decisions will, as elsewhere, be coordinated with land planning and management activities of other governmental entities and landholders who would be affected. In such cases, cooperative agreements should be sought in order to secure mutual objectives consistent with the purposes of the ACEC designation. In any case, an ACEC will not include non-BLM inholdings or other non-BLM lands or interests.

4. Expressions of Public Concern. The views of members of the public, including residents of nearby communities, landholders, and users of the public lands, also will be key considerations in making designation decisions.

V. Process

The process to be used in making ACEC identification, designation, and management decisions is BLM's planning process for preparing and approving Resource Management Plans (RMP's). (The BLM planning regulations, at Sec. 1601.5, provide details of this planning process.) Identification of potential ACEC's will be given priority in the inventory of all public lands and their resources, and designation and protection of ACEC's will be given priority in the development and revision

of RMP's (FLPMA, Secs. 201(a) and 202(c)(3)).

A. Identification Phase. Criteria for identifying potential ACEC's are discussed in Identification Criteria, III, above.

1. Information Collection. a. District managers will give priority attention to the identification of important environmental resources and natural hazards on BLM-administered land in the "identification of issues," "development of planning criteria," and "inventory data and information collection" phases of the resource management planning process. Sources of special significance information as discussed in III.C. would be extremely useful.

b. Members of the public, including representatives of State and local government, may at any time nominate an environmental resource or natural hazard to be considered for ACEC identification purposes. Any such nominations are most useful during the inventory and scoping steps of the planning process, and should be accompanied by maps and description, together with available evidence as to their relevance and importance. An environmental resource or natural hazard may be identified for ACEC purposes at other times as well.

c. Bureau employees may nominate an environmental resource or natural hazard at any time, such as in the course of BLM field activities, including on-the-ground project planning work. Information from other relevant sources, such as State or Federal natural heritage, cultural, historic, or scientific research and education programs, including both inventory and evaluation data, also will be considered for identification purposes.

d. Whenever an environmental resource or natural hazard has been nominated by the public or the Bureau, by any one of the above methods, such a resource or hazard will be analyzed, evaluated, and reviewed, as described in V.A.2 and 3 below, and a finding made as to whether its location is a "potential ACEC," as described in V.A.4 below. This determination should be made as soon as possible, but not later than six months, after such a resource or hazard is nominated.

2. Analysis and Evaluation. A nominated environmental resource or natural hazard will be analyzed and evaluated by members of the District Office staff, as to relevance and importance, taking into account both present use and condition, and trends. The application of the criteria will be a professional evaluation based on the qualities and characteristics of the

resources or hazards themselves, in the context of public concern, without consideration of alternative uses of the resources.

3. *Review of the Analysis and Evaluation.* The identification recommendation will be reviewed by other District Office professional staff on a systematic, interdisciplinary and multiple-resource basis to ensure that the environmental resources and natural hazards being evaluated meet the identification criteria. Interdisciplinary aspects of this review will be in accord with BLM's planning regulations and NEPA Sec. 102(A), and Sec. 1502.6 of the Council on Environmental Quality's (CEQ's) regulations for implementing NEPA, so as to ensure integrated application of the natural sciences, social sciences, and environmental design arts. Where preparers or reviewers on the District Office staff do not represent all of the appropriate disciplines, assistance should be obtained from the State Office staff.

This review will include whether the proposed ACEC boundary encompasses an appropriate unit, of adequate size and configuration to include not only its central features, but such surrounding and adjacent lands as may be appropriate to assure that the necessary special management attention can be provided in a secure setting. In any case, there is no size limitation for ACEC's, either maximum or minimum.

Where more than one environmental resource or natural hazard is located in the same general location, consideration should be given to consolidating their review as one potential ACEC. While each environmental resource or natural hazard involved should be evaluated for ACEC identification purposes on an individual basis, the whole potential ACEC area should be included in the review, on an integrated and multiple-resource basis. In some situations a combination of different kinds of environmental resources may be present, and this circumstance and their interrelationships may add to the importance of a potential ACEC area as a whole.

4. *Identification Finding.* The District Manager will make the finding whether an environmental resource or natural hazard meets the identification criteria. If the identification criteria are met, the area in which the identified environmental resource or natural hazard is located becomes a potential ACEC. (This decision will be made as part of the "evaluation" and "management situation analysis" steps of the RMP planning process, Sec. 1601.5, planning regulations.) The District Manager then shall prepare

technically feasible protection objectives and recommended special management requirements, together with supporting reasons and documentation.

B. *Temporary Management.* When a District Manager finds that the location of an environmental resource or natural hazard is a potential ACEC (i.e., when the identification criteria have been met), the District Manager will take all feasible action to assure that those qualities that make the resource important are not damaged or otherwise subjected to adverse change pending an ACEC designation decision. With regard to a natural hazard found to meet the identification criteria, the District Manager will take all feasible action to assure the safety of life and property pending an ACEC designation. Examples of some of the actions the District Manager can initiate include: cooperative agreements, emergency withdrawals, temporary closures, supplemental rules, increased monitoring and surveillance, or implementing relevant laws or statements of policy. Where temporary management measures available to the District Manager are not adequate to fully protect a potential ACEC, the District Manager will promptly advise the State Director, who will take appropriate authorized action. The primary consideration will be to protect the integrity of a potential ACEC's values until a designation decision is made.

C. *Designation Phase.*

1. *Designation Consideration through the Planning Process.* After a potential ACEC is identified, the following procedures will be used:

a. When an approved management plan exists:

(1) Where appropriate special management attention already is being provided in accord with an existing plan, thereby requiring no change in management, ACEC designation should be made by adding to the plan an ACEC element including appropriate special management requirements, thus providing the protection of Sec. 102(c)(3) of the Act without awaiting revision of the plan in its entirety;

(2) Where a change in management would be required to assure appropriate special management attention, the District Manager will consider the significance of the indicated changes and determine (a) whether the indicated change can be made in a timely manner according to the regular planning schedule; or (b) whether the plan should be amended more promptly without awaiting the regularly scheduled time for plan completion or revision. The

District Manager shall act accordingly and also provide special temporary management in accordance with V.B. above until the decision is made on the proposed plan or amendment.

(3) During the period of transition to the Bureau's revised planning process, where an approved land-use plan exists—such as a Management Framework Plan (MFP)—until such time as a Resource Area is placed under an approved Resource Management Plan (RMP), the area will continue to be managed under the existing land-use plan. During the transition period until approval of an RMP, an existing MFP may be amended to include an ACEC element in accord with these guidelines (and Sec. 1601.8 of the planning regulations).

b. When no approved management plan exists:

When the District Manager considers that prompt designation of a potential ACEC is appropriate without waiting for approval of the other elements of a plan, the District Manager will prepare and proposed approval an ACEC plan element (Sec. V.B.3), analyze the proposed action through an environmental analysis or environmental statement as necessary, provide opportunity for public participation, and, with the State Director's concurrence, make a designation decision in accordance with Sec. 1601.8(c) of the planning regulations. Special temporary management will be provided in accordance with Sec. V.B. of these guidelines until a decision to designate or not designate is made.

2. *Consideration of Alternatives.* For all potential ACEC's, alternatives to the proposed ACEC designation will be considered and evaluated through the alternative development and evaluation phases of the resource management planning process. Alternatives may include differing ACEC special management requirements, differing configurations of possible ACEC boundaries, and no ACEC designation—i.e., management under standard BLM procedures; protective management through another form of special area designation; or alternative uses for the resources involved. Effects of alternatives will be considered and a preferred alternative selected.

3. *Preparation for Designation Decision.* Following opportunity for public comment on the alternatives, the District Manager will review the record of public response, consider the other relevant factors, and propose a decision that will allocate the environmental resources involved to the use or combination of uses that best serves the

public interest (in accord with Designation Considerations, IV., above). If the proposed decision is to designate an ACEC, a proposed ACEC element of a proposed plan or plan amendment will be prepared. When more than one ACEC proposal is included within an ACEC plan element, each proposal will be the subject of an individual part of the element. The District Manager will advise the State Director of his proposed decision. The State Director must concur with a District Manager's proposed decision before a decision may be made by the District Manager (in accord with concurrence procedures, Secs. 1601.5-8 and 1601.6-1, planning regulations).

a. *ACEC Plan Element.* An ACEC element of a plan will include or reference for each ACEC involved:

(1) *Name:* A proposed name for the ACEC, for public identification purposes. The name should indicate both a geographic location or central feature and the purpose of the ACEC, e.g., Clearwater Creek Scenic Area, Rainbow Desert Tortoise Research Natural Area, or Dead Man Cliffs Hazardous Area. The Washington Office will prepare a discrete list of "purpose-related" title categories which will normally be used to avoid proliferation of title categories for like areas.

(2) *Management Objectives:* A statement of the specific management objectives for the particular ACEC.

(3) *Description:* A description of the environmental resources or natural hazards involved, including description of their interrelationships, together with assessment and evaluation of their relevance and importance, and other pertinent characteristics of the area and its setting.

(4) *Special Management Requirements:* A statement of the special management requirements for the ACEC. The purpose of the statement of special management requirements is to assure that the necessary protective management will be both prescribed and applied. It is recognized that the degree to which it is feasible for an area's special management requirements to be fulfilled (i.e., fully specified, completed, adopted, or implemented) at the time of designation may vary from one ACEC to another—depending on such factors as the level of current knowledge and understanding of an area's resources, degree of importance, need to designate without delay, and complexity of the management situation. Thus, some of the provisions of the special management requirements may be fulfilled at the time of designation by a description of the requirement, together with a schedule for

implementation. Where provisions are needed to guide on-the-ground management of the ACEC that cannot be fulfilled at the time of designation, they will be incorporated into a subsequent activity plan for the ACEC. Completion of an activity plan as needed for each ACEC is a priority item and should be completed within 6 months of approval of the ACEC plan element.

The statement of special management requirements will include:

(A) A description of the special management attention to be applied, giving priority to prevention of irreparable damage and other protective requirements. Special management measures, including any necessary standards or criteria, will be designed to (1) provide effective protection against adverse change to the qualities that make the environmental resource or resources involved important, and wherever feasible to enhance these qualities or (2) provide protection from hazards.

Interrelationships among multiple resources should be taken into account in prescribing special management requirements for an ACEC as a whole. This will include, or include description of, any necessary rules, regulations, and plans for protection, in accord with Sec. 102(a)(11) of the Act. These measures will be described in sufficient detail to effectively inform BLM personnel, other governmental entities, and the public of the basic terms and conditions of future management and use of the area.

The special management requirements for each particular ACEC will be designed individually to fit the resources or hazards within each particular geographic area involved. Although affected by management objectives of adjacent lands, each ACEC's special management requirements will be handcrafted independently. Adjacent land management practices may complement a particular ACEC's management requirements, but those practices should not be relied on to fulfill an ACEC's management requirements.

A distinction should be made between those measures that (1) can be adopted and carried out by BLM and (2) those that are a basis for a request or recommendation to others for action. This second category—for example, proposals for withdrawals, legislation, or cooperative agreements with other government agencies, landholders, or private organizations or intentions to nominate an ACEC to a Federal or State register or recognition program—depend in whole or in part on actions of others. In intermingled land ownership

situations, where resources or hazards within an ACEC on BLM lands are likely to be affected by uses of adjacent or nearby non-BLM land, any necessary cooperative agreements, contracts or other arrangements with such land managers, landholders, or governmental entities, pursuant to Sec. 307 of the Act, will be included or described. Any such measures may be requested or completed prior to the time of designation. In any case, an ACEC will not include non-BLM inholdings or other such non-BLM lands or interests.

Where necessary in order to provide the required special management, and when it is in the public interest to do so, lands or interests in lands may be recommended for acquisition by purchase, exchange, or donation pursuant to Secs. 205, 206, and 318(d) of FLPMA or other applicable law.

(b) to the maximum extent possible, types of future uses, activities or management practices that are considered compatible with the purposes of the designation, and those considered incompatible, shall be described, together with a description of any existing incompatible uses within the area and a schedule for conformance.

(c) Maps and other supporting documentation or references. (Where general public knowledge of the precise location or recognizable features of a fragile resource could reasonably contribute to its damage, rather than protection, only general location or characteristics should be shown on maps or described.)

(5) *Public Comment.* The ACEC element will include a summary of public participation and a record of public response.

4. *Designation.* After concurrence by the State Director, the District Manager will make the designation decision. If the decision is to designate, the designation shall be made through approval (i.e., adoption) of the RMP, MFP, or amendment in which the ACEC plan element is included; or the proposed ACEC plan element when no plan exists.

a. *Special Provisions for Resources of More-than-State Significance.* When a State Director considers that an environmental resource within an area being proposed for ACEC designation may be of more-than-State, national, or international significance, he will so advise the BLM Director and provide rationale. If the BLM Director finds that such a resource is of national or international significance, the BLM Director may, after reviewing the proposed ACEC element, concur in the proposed designation decision. The BLM

director may recommend and request the concurrence of the Secretary in the designation of a proposed ACEC involving a resource found to be of national or international significance. Subsequently, in the event revision of that ACEC element is proposed, or an action inconsistent with that ACEC's special management requirements is proposed that could adversely impact a protected environmental resource within that ACEC, no such revision or action shall be undertaken or permitted by BLM except by concurrence of all officials who concurred in the designation.

b. *Public Notice.* Notice of each ACEC designation will be published in the *Federal Register* by the State Director, and a public announcement provided to other media.

c. *Decision Not to Designate.* If the decision is not to protect a potential ACEC through ACEC designation, that decision will be documented through the planning process and a public announcement made promptly. If the decision is to provide the necessary protection through another form of special management, the documentation and announcement will include specifics of that other form. If the decision is to allocate such an identified resource, in whole or in part, to another use which would result in damage or loss to such resource, the District Manager must first find that there is an overriding public need for such other use; that the public benefits of such other use outweigh the public benefits of use appropriate with ACEC designation, and that such other use will best meet the present and future needs of the American people (FLPMA, Sec. 103(c)). In addition, any allocations to such other use will include all feasible planning and management to prevent, minimize, mitigate or restore any consequent damage to the resource, and these requirements will be specified in the documentation.

D. Management Phase.

1. *Management Responsibilities.* Upon designation of an area as an ACEC, the area's special management requirements are in effect, as specified in the ACEC element of the plan, and all subsequent uses and activities within the area shall be in accord with those requirements.

In the event the District Manager considers that an activity should be undertaken, or permitted to be undertaken, because he considers it would be in the public interest despite its inconsistency with an ACEC's special management requirements, he may propose that the ACEC element of the relevant plan be amended to permit such activity. In any such case, provisions of V. F. (Revision of a

Designation) of these guidelines and 1601.6-3 (Changing the Resource Management Plan) of the BLM planning regulations, shall be followed.

All BLM planning and management activity concerned with lands outside of but affecting an ACEC shall be, insofar as feasible, supportive of and consistent with the objectives of the ACEC designation. Any threat to the integrity of an ACEC-Protected resource—whether originating within or outside of an ACEC's boundary, or whether undertaken or proposed by a governmental agency or a private entity—shall be prevented or opposed by the District Manager and appropriate action taken promptly. Where the District Manager lacks authority to deal effectively with any such threat, the District Manager shall request action be taken by the State Director.

2. *Reporting Responsibilities.* On internal documents for accountability purposes each ACEC should be identified as a generic ACEC by name, e.g., Clearwater Creek Scenic Area (ACEC), State name, District name, Resource Area name and number. Information on the status of ACEC identification, designation, management and use, and on management problems encountered and suggestions for improvement of the ACEC process, will be reported by District Managers and State Directors to the Director (430), as one basis for preparing the annual report to Congress on implementation of FLPMA, required by Sec. 311 of the Act.

E. *Programming.* Needs for identification of environmental resources or natural hazards for ACEC purposes, and for designation and special management of ACEC's, will be given priority consideration in the scheduling, development and revision of all RMP's (and MFP's during transition), and of pertinent activity, program and work plans—pursuant to Secs. 102(a)(11), 201(a), and 202(c)(3) of the Act. Whenever inventory, analysis, planning or management actions are scheduled for the public lands, funding and personnel requirements for anticipated ACEC identification, designation, and special management will be incorporated into the appropriate budget requests for resource inventories, RMP (MFP during transition), and in subsequent activity plans and program plans, as developed through the budget process, and, depending upon the availability of funds and personnel, will be included in annual work plans.

F. *Revision of a Designation.* No revision may be made in the terms of an ACEC designation, except by plan amendment through the planning process, incorporating environmental

analysis and public participation. For any such proposed revision, at a minimum, an environmental assessment (EA) will be prepared. The decision whether an environmental impact statement (EIS) is required will be based on findings of the EA, in accord with BLM's planning regulations and CEQ regulations for NEPA (40 CFR 1500). If such a proposed revision would result in damage to an ACEC-protected environmental resource to the extent that it would be a major Federal action significantly affecting the human environment, an EIS will be prepared and filed for public review.

No use or action that would be inconsistent with an ACEC's special management requirements or that would adversely impact an ACEC-protected resource shall be permitted unless the District Manager, after considering all pertinent factors, including the results of environmental analysis and public comment, makes the following findings: (1) The public benefits of the proposed incompatible action clearly outweigh the public benefits of continuing protection of the ACEC-protected resource; (2) There is a clear public need for the proposed action and such action is clearly in the public interest; (3) There is no feasible alternative to, or alternative location for, the proposed action, and (4) Such action includes all feasible planning and management requirements to prevent, minimize, mitigate, or restore the effects of adverse impacts.

In any such case, concurrence by the BLM State Director shall be a prerequisite for approval of such a plan amendment. Where an environmental resource that has been found by the BLM Director to be of national or international significance is involved, and the BLM Director concurred in the ACEC designation decision, the BLM Director, also, would have to concur in any such plan amendment. Where the Secretary concurred in the designation decision, the Secretary, also, would have to concur in any such plan amendment.

G. *Public Involvement.* Opportunity for public involvement will be provided at each step of the ACEC process, and public participation invited and facilitated by BLM officials in accord with applicable law and executive policy.

1. *Public Participation Guidance:* Public participation opportunities shall include, at a minimum, public notice by District Managers when an ACEC identification or designation process begins, and announcement of public meetings, workshops or other informational activity to explain the

schedule and procedures, possible application of the ACEC process to particular local situations, and how interested persons and organizations may effectively participate.

2. *Administrative Review.* Protests relating to the proposed approval or disapproval of an plan or plan amendment concerning ACEC designation, related management practice, or other aspects of the ACEC process may be filed with the State Director for administrative review by BLM. Procedures and requirements for such administrative review, including protest filing procedures and qualifications, are covered in Sec. 1601.6-1 of BLM's planning regulations.

VI. Responsibilities

A. *District Managers.* Basic responsibility for making ACEC decisions has been delegated to District Managers. As part of District Managers' responsibility to prepare and approve an RMP for each Resource Area in their Districts, each District Manager will, with assistance of Area Managers, identify environmental resources and natural hazards that meet ACEC identification criteria, prepare proposed ACEC elements of such plans as warranted, and designate any ACEC's after obtaining the appropriate concurrence. Subsequently, the District Manager will make any necessary revisions to ACEC plan elements through the plan amendment process. District Managers' continuing responsibilities include preparation of activity plans and management of each ACEC in accord with its special management requirements. District Managers will provide for and facilitate public participation in the ACEC process.

B. *State Directors.* State Directors will provide quality control for the ACEC process in their States and technical assistance and policy guidance to District Managers, review proposed ACEC designation or Revision decisions, and concur before such decisions are made by District Managers. Where a proposed ACEC contains a resource which State Directors consider may be of national or international significance, they will so advise the Director. State Directors will file draft and final environmental statements associated with ACEC's (in accord with Sec. 1601.0-4(b) of the planning regulations), and will assure that public participation in the ACEC process is provided for and facilitated.

C. *Director.* National-level policy direction and guidance for the ACEC process are provided by the Director. When State Directors advise the

Director that they consider a resource within a proposed ACEC may be of national or international significance, the Director may, after reviewing the proposed designation decision, make such a finding and may concur in the proposed decision. The BLM Director may seek concurrence by the Secretary in ACEC designation decisions.

D. *Coordination.* All BLM personnel with responsibilities for programs involving inventory, planning or management of public-lands resources will integrate the ACEC process into these programs. Each State Director and District Manager will designate a member of their respective resources staffs as ACEC Coordinator. In the Washington Office, ACEC coordination functions and responsibility for development of procedures for, and oversight of, identification, designation and management of ACEC's, are assigned to the Assistant Director—Recreation and Environmental Areas, through the Deputy Director for Lands and Resources.

VII. Relationships

ACEC's and other forms of special management designation are not necessarily mutually exclusive, and ACEC designations may be used to complement the other forms.

A. *Effect of ACEC Designation.* Because in FLPMA the Congress mandated not only the identification and designation, but also the protection, of ACEC's, the ACEC process is more than a recognition program. It is a process for (1) determining what special management important environmental resources or natural hazards require; (2) providing commitment that this special management will continue to be provided on a priority basis in accord with Sec. 202(c)(3) of the Act; and (3) providing such management.

B. *Relationship to Other Allocation Designations.* ACEC's are a part of a Bureau system of special area designations. The purpose of these special area designations is to give special management attention to areas containing important natural and cultural resources and natural hazards (ACEC's), areas with combinations of significant resources values, and areas with certain significant public recreation opportunities.

The Secretary, and the BLM Director by delegation, have for many years designated special management areas for limited uses under their general authority to protect public health and safety, the natural environment, erosion and destruction of plant life and wildlife habitat. These areas have been given such titles as Primitive Areas, Scenic

Areas, and Research Natural Areas. Congress also has designated areas of the public lands as National Conservation Areas and Wild and Scenic Rivers for special management purposes.

In the future, areas of the public lands with important natural or cultural resource values—such as previously designated Research Natural Areas and Outstanding Natural Areas—shall be considered for ACEC designation.

An area designated by Congress for special management, such as a National Conservation Area, a National Wild or Scenic River, or a Wilderness Area, may contain one or more ACEC.

C. *Relationship to Recognition Designations.* Unlike ACEC designation, some types of Secretarial and State government designations are recognition-oriented; that is, they constitute a recognition of the significance of certain types of important environmental resources but do not constitute a commitment to provide special management protection of these resources. Examples include National Natural Landmarks designated by the Secretary of the Interior and Natural Areas identified by some State governments. ACEC designations may, in whole or in part, be considered for recognition, through such programs. For example, all or part of an ACEC also may be a National Natural Landmark if its values are found to be of national significance as defined by that landmarks program. Conversely, an area of the public lands which has been given recognition through such a program will be considered for ACEC designation.

D. *Withdrawals.* A number of withdrawals have, in effect, allocated areas of the public lands for specified public purposes by public land order issued by the Secretary. An ACEC designation does not constitute a withdrawal. That is, designation of an ACEC does not by itself preclude from the area any activities which may be allowed under the public land laws, including the General Mining Law of 1872. A withdrawal shall be requested of the Secretary in association with an ACEC designation if withdrawal is necessary in order to provide for the special management requirements of that particular ACEC.

E. *Integration with Other Management Actions.* The identification, designation, and management phases of the ACEC process will be incorporated into all BLM resource planning and management programs and activities on a priority basis, pursuant to FLPMA and other relevant law and executive direction. The ACEC process will be

administered so as not to duplicate, but rather to complement and strengthen the use of all relevant forms of management of the resources of the public lands in the public interest.

**Attachment B—State Offices of the
Bureau of Land Management**

Alaska State Office, 701 C Street, Box 13, Anchorage, Alaska 99513, Phone: (907) 271-5076.

Arizona State Office, 2400 Valley Bank Center, Phoenix, Arizona 85073, Phone: (602) 241-2651.

California State Office, Federal Office Bldg., Rm. E-2841, 2800 Cottage Way, Sacramento, California 95825, Phone: (916) 484-4676.

Colorado State Office, Colorado State Bank Bldg., Rm. 700, 1600 Broadway, Denver, Colorado 80202, Phone: (303) 837-4325.

Eastern States Office, 350 South Pickett Street, Alexandria, Virginia 22304, Phone: (703) 235-2833.

Idaho State Office, Federal Building, Rm. 398, 550 West Fort Street, P.O. Box 042, Boise, Idaho 83724, Phone: (208) 384-1401.

Montana State Office, Granite Tower, 222 North 32nd Street, P.O. Box 30157, Billings, Montana 59107, Phone: (406) 657-6461.

Nevada State Office, Federal Bldg., Rm. 3008, 300 Booth Street, P.O. Box 12000, Reno, Nevada 89520, Phone: (702) 784-5451.

New Mexico State Office, U.S. Post Office and Federal Bldg., South Federal Place, P.O. Box 1449, Santa Fe, New Mexico 87501, Phone: (505) 988-6217.

Oregon State Office, 729 N.E. Oregon Street, P.O. Box 2965, Portland, Oregon 97208, Phone: (503) 231-6251.

Utah State Office, University Club Building, 136 East Temple, Salt Lake City, Utah 84111, Phone: (801) 524-5311.

Wyoming State Office, 2515 Warren Avenue, P.O. Box 1828, Cheyenne, Wyoming 82001, Phone: (307) 778-2220.

[FR Doc. 25995 Filed 8-28-80; 8:45 am]

BILLING CODE 4310-84-M

Federal Register

Wednesday
August 27, 1980

Part IV

Environmental Protection Agency

Interim Primary Drinking Water
Regulations

ENVIRONMENTAL PROTECTION AGENCY**40 CFR Part 141****[FRL 1535-7]****Interim Primary Drinking Water Regulations; Amendments****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Final rule.

SUMMARY: These regulations amend the National Interim Primary Drinking Water Regulations (NIPDWR), promulgated according to Section 1412 of the Safe Drinking Water Act, as amended, 42 U.S.C. 300f *et seq.* at 40 FR 59566 (December 24, 1975) and 41 FR 28402 (July 9, 1976). These amendments provide greater latitude to small public water systems for determination of compliance with the microbiological maximum contaminant levels (MCLs), specify alternate analytical techniques that have been approved by EPA for determining compliance with existing MCLs, provide an update of the approved analytical methods as prescribed in the NIPDWR, add a statement to the NIPDWR clarifying the apparent contradiction between setting an MCL for fluoride and the beneficial effects of fluoride, allow water samples taken by the State to be used to determine compliance, clarify that water systems shall submit to the State upon request any records required to be maintained by the NIPDWR, require water systems that have completed a public notification to submit to the State a representative copy of the public notification, change the time when results of monitoring are required to be submitted to the State from 40 days following a test to within 10 days following the month in which the sample results are received or within 10 days following the end of the monitoring period as determined by the State (whichever is shortest), require community water systems to monitor and report sodium levels in finished drinking water, and require community water systems to determine the presence of specific types of materials in distribution systems, and for one year to monitor and report corrosivity characteristics (pH, alkalinity, hardness, temperature, total dissolved solids, and the Langelier Index) of finished drinking water.

Modifications to the NIPDWR relating only to non-community water systems increase the latitude of the States by providing an additional 18 months for completion of nitrate monitoring, allow

some non-community systems to exceed the 10 mg/l nitrate MCL up to 20 mg/l under certain controlled conditions, provide latitude in turbidity monitoring requirements and include modifications to the microbiological monitoring frequency and public notification measures.

In addition, increased latitude is provided to the States with respect to requirements concerning public notification through the media for community water systems.

EFFECTIVE DATE: These amendments to the regulations will be effective August 27, 1980 except that sodium monitoring and reporting, determination of the types of materials in distribution systems, and monitoring and reporting corrosivity characteristics will be effective 18 months following the date of promulgation. The sodium and corrosion requirements must be completed within 12 months following the effective date.

ADDRESS: Copies of the Statement of Basis and Purpose, which provides additional supporting documentation for the sodium and corrosivity monitoring, is available upon request from Craig D. Vogt, Chief, Science and Technology Branch, Criteria and Standards Division, Office of Drinking Water (WH-550), Room 1111, WSME, Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, and is available for reading at EPA Regional Offices.

FOR FURTHER INFORMATION CONTACT: Craig D. Vogt, 202-472-5030.

SUPPLEMENTARY INFORMATION: On July 19, 1979, the EPA proposed amendments to the NIPDWR (44 FR 42247 *et seq.*) pursuant to Sections 1412, 1414, 1415, 1416, 1445 and 1450 of the Safe Drinking Water Act, as amended (42 U.S.C. 300f *et seq.*). As discussed in detail in the preamble to the proposed amendments, 44 FR 42247, these amendments to the NIPDWR are intended to update the regulations as a result of information gained subsequent to promulgation of NIPDWR on December 24, 1975, and July 9, 1976, pursuant to Sections 1412, 1414, 1415, 1416, 1445 and 1450 of the Safe Drinking Water Act as amended (42 U.S.C. 300f *et seq.*).

A total of 88 written comments on the proposed regulations were received. A public hearing was held in Washington, D.C., on August 29, 1979, and a total of seven witnesses testified at the public hearing. Comments and statements were received from water utilities, State and local officials, public interest groups, engineering consulting firms, industry associations, and individual citizens. Included were comments from the State Liaison Group and the National Drinking Water Advisory Council. EPA has

thoroughly considered all comments and statements in formulating the final regulations. A detailed discussion of the comments and statements received and the Agency's response is presented in Appendix A.

Summary of Major Changes

As a result of the comments and new information provided by the commenters, the Agency made several changes to the proposed regulations which are indicated below.

The condition that no nitrite shall be present has been deleted from the provision that allows nitrate levels in non-community systems to exceed the MCL up to a level of 20 mg/l. In its place is guidance in the preamble to the States that levels of one mg/l nitrite should not be exceeded without careful consideration of all relevant factors on a case-by-case basis. In addition, appropriate local and State public health authorities must be notified annually of nitrite levels that exceed 10 mg/l. The proposal did not specify any frequency for notification and the notification was to physicians.

The proposed amendment that provided an additional year for non-community systems to complete nitrate monitoring has been extended to 18 months.

The proposed amendments to § 141.14 have been clarified such that the use of and/or within the regulation has been deleted. In addition, a provision has been added to § 141.14 (microbiological MCL) so that if an average MCL violation is caused by a single sample MCL violation the supplier will only be required to make one public notification for the single sample violation.

Provisions have been added to § 141.28 that allow analysis of pH and temperature by any person acceptable to the primacy agency.

The proposed amendment to § 141.31(a) has been changed to require the water supplier to report its analytical results to the primacy agency within the first ten days following the end of the required monitoring period as designated by the State, or within the first ten days following the month in which the sample results were received, whichever time is shortest.

The direct public notification requirement for sodium has been deleted. In addition, the amendment has been changed to require the water supplier to report sodium results within the first ten days of the month following the month in which the sample results were received or within the first 10 days following the end of the required monitoring period as designated by the State, whichever time is shortest. Also, a

provision has been added so that if more than one sample per compliance period is required, the supplier can accumulate the data before reporting the results.

The proposed amendment to 141.42 concerning corrosion control has been changed to require public water systems to identify the presence of specific materials within the distribution system and to monitor and report corrosivity characteristics including pH, alkalinity, hardness, temperature, total dissolved solids, and the Langelier Index. The monitoring and reporting requirement is limited to one year duration. These requirements are the initial steps in the proposed corrosion control program and specific monitoring requirements are set forth. For systems distributing corrosive waters, States are being encouraged to provide direction and technical assistance in implementing control measures to reduce the corrosivity. In addition, in a separate rule-making procedure, regulations will be proposed that set forth requirements for systems identified by the corrosivity monitoring to be distributing corrosive waters to increase monitoring for corrosion by-products, such as lead and cadmium, in representative locations.

The analytical methods approved for use in complying with the NPDWR have been updated along with the approved alternate analytical methods.

Major issues, comments and revisions are discussed according to topic in the following.

Microbiological Contaminants

The wording of the proposal has been changed for purposes of clarification. The meaning and intent remains unchanged with the exception of adding a provision that if an average monthly MCL violation is caused by a single sample MCL violation, the supplier will only be required to make one public notification.

This amendment allows the primacy agency additional latitude in determining compliance by small public water systems with the monthly average MCL for coliforms in drinking water. The existing regulations governing microbiological contamination require that public water systems meet a monthly average and single sample MCL. This amendment does not make changes in the single sample MCL requirements.

The Safe Drinking Water Act authorizes EPA to establish minimum sampling requirements for public water systems taking into account several factors including the population at risk. Accordingly, the present regulations require systems to take a minimum number of microbiological samples each

month based on the number of persons being served. Thus, for example, systems serving between 25 and 1,000 persons must take at least one sample per month; systems serving between 8,501 and 9,400 persons must take at least 10 samples per month; and systems serving 970,001 to 1,050,000 persons must take at least 300 samples per month.

Compliance with the microbiological standard is determined both on the number of coliform in a single sample and on the basis of a monthly average of the samples. Smaller systems taking fewer samples are more likely to violate the monthly average standard on the basis of only one sample showing coliform contamination (a "positive" sample) than are larger systems because of the mathematics of the averaging computation. For example, a system taking 10 samples per month with a single positive result of 16 coliforms would violate the monthly standard; whereas, a system taking 100 samples per month with a single positive result of 16 coliforms would not violate the monthly average standard; thus, this might lead to erroneous conclusions regarding the quality of the water of the systems. EPA recognizes that samples can be unknowingly contaminated in the collection process, in transit or in the analytical process. Problems of this nature can severely impact very small systems and require unwarranted expense of public notification while not increasing public health protection. The problem of one such sample distorting the monthly average primarily impacts systems taking 10 or fewer samples per month (systems that serve less than 9,400 persons).

In order to resolve this problem, EPA is amending 40 CFR § 141.14(a)(1), (b)(1) and (b)(2), to permit State discretion in allowing certain public water systems serving fewer than 9,400 persons to exclude one (but only one) positive routine sample in the calculation to determine compliance with the monthly average if two conditions (safeguards) are satisfied. First, a sample must be collected on each of two consecutive days from the same sampling point beginning within 24 hours after it has been determined that a routine sample is positive as provided for in 40 CFR 141.21(d) (1) (2) (3). Both of these samples, called "check" samples, must be negative for the presence of coliform bacteria. Otherwise, the positive routine sample must be included in the calculation of the monthly average and, if this results in a violation of 40 CFR § 141.14, the public must be notified under 40 CFR § 141.32 or § 141.16.

Second, regardless of whether the positive routine sample is followed by two consecutive negative "check" samples, the positive routine sample must be reported to the State under 40 CFR § 141.31(a) and a record of the sample must be retained by the public water system for five years under 40 CFR § 141.33(a). This precaution should allow either the State or the public water system to detect a pattern of positive routine samples which might indicate a persistent problem with the microbiological quality of the drinking water.

This amendment will be permitted on a case-by-case basis as approved by the States in water systems where the State determines and indicates in writing that no unreasonable risk to health would exist as a result of this provision. The determination of no unreasonable risk to health should be based upon all relevant information including but not limited to the following: (1) the maintenance of an active disinfectant residual, (2) the potential for contamination as indicated by a sanitary survey, and (3) the history of water quality at the public water system (e.g., MCL or monitoring violations). EPA encourages water systems to maintain an active disinfectant residual as a protective measure, and this should be a major factor in a State's evaluation regarding the applicability to an individual water system. Further, States are encouraged to initiate systematic evaluations of all pertinent factors on a case-by-case basis prior to receipt of a petition from a public water system for application of this provision.

The existing regulations and the final amendments to the regulations provide three additional safeguards. First, water supply systems utilizing this amendment must take at least one additional routine sample in that period to replace the one that is discarded; second, the amendment can only be applied once during two consecutive compliance periods (either months or quarters as the case may be). In general, a compliance period is one month, but some public water supplies may be on a quarterly schedule. If a system has more than one positive routine sample in a compliance period, those additional positive routine samples must be included in the average whether or not they are followed by two negative check samples (Note: More than one positive routine sample per compliance period more likely indicates contamination of the drinking water than simple mishandling of the sample). Third, this amendment does not affect the "single sample" test set forth in the microbiological MCL. That is, regardless

of the monthly average of the microbiological standards, a system exceeds the standard if the individual or "single samples" taken in any month exceed the maximum levels established in 40 CFR 141.14(a) (2), (3); § 141.14(b)(1) (ii), (iii); and § 141.14(b)(2) (ii), (iii). It is emphasized that these provisions are not a substitute for proper sampling and analytical procedures including verification but merely provide latitude to the States to deal with small systems in the infrequent event of an improperly conducted sampling or test. This amendment does not allow public water supplies to reject samples known to be properly collected and analyzed. Investigations into the nature of the problem should be made and corrective measures should be taken, especially in repetitive cases where the amendment is exercised more than once annually.

The amendment also provides that periods shall be used instead of semicolons after 40 CFR 141.14(a)(1); § 141.14(b)(1)(i); and § 141.14(b)(2)(i) to make it clear that the microbiological limitations are composed of two separate MCLs—the "monthly average" standard and the "single sample" standard.

In addition, § 141.21(a) is being clarified to the effect that suppliers of water for community water systems and non-community water systems may engage the services of approved laboratories to monitor and analyze for coliform bacteria for the purpose of determining compliance with § 141.41. Contrary to EPA's intent, the existing language in § 141.21(a) has been interpreted by some to mean that the suppliers of water shall themselves monitor and analyze for coliform bacteria and thereby could not use other private and State laboratories for this purpose. That interpretation was inconsistent with § 141.28 which requires all analyses except turbidity and free chlorine residual to be performed in a laboratory approved by the State.

It is emphasized that these are interim regulations; EPA is conducting comprehensive evaluations of the microbiological standards in development of the Revised National Primary Drinking Water Regulations.

Review of the Major Issues—Microbiological Contaminants

In the proposal, EPA specifically solicited comments on the merits of the modification to the regulation and on the adequacy of the safeguards for dealing with the problem of possible spurious samples leading to unnecessary public notification.

Ten comments were received that expressed some dissatisfaction with the current coliform standard, particularly the average monthly MCL. The main objections were that the response time to the average MCL was too long to be meaningful and that relative numbers of coliforms do not indicate relative health risks as is implied by the single sample MCL of four or greater and by the average MCL.

These commenters' concerns were directed towards the coliform MCL rather than the specific requirements in the proposal and were therefore not addressed herein. EPA is currently conducting a comprehensive evaluation of the regulations on microbiological contaminants and each of these comments will be carefully considered in the development of the Revised Regulations.

Many commenters misunderstood the provisions of the amendment in that they thought that the proposed amendment required that a system maintain an active disinfectant residual before it could be eligible for excluding a sample from the average MCL calculation. Eight of these commenters felt that samples with no chlorine residual could be more easily contaminated (i.e. through improper sampling or testing procedure rather than in the actual quality of the water) and be misrepresentative than samples with a residual; they were opposed to systems being required to maintain a disinfectant residual in order to be eligible for the conditions of the amendment. Several commenters felt that only systems having an active disinfectant residual should be eligible for excluding a sample.

For purposes of clarification the wording of the amendment has been changed. As discussed previously, this amendment will be permitted on a case-by-case basis as approved by the States in water systems where the State determines and indicates in writing that no unreasonable risk to health would exist as a result of this provision. This determination should be based upon all relevant information including but not limited to the following: (1) the maintenance of an active disinfectant residual, (2) the potential for contamination as indicated by a sanitary survey, and (3) the history of water quality at the public water system (e.g. MCL or monitoring violations).

Seven commenters stated that the amendment should apply to all system sizes, most arguing that contamination of one sample in a large system could lead to non-compliance with the monthly average MCL and unjustified public notification.

Smaller systems, because of their lower required monitoring frequency, are more likely to violate the monthly average MCL because of contamination of one sample than are larger systems. Large systems taking a large number of samples are less likely to violate the monthly average MCL because of a spurious sample since it would be included with a large number of negative samples (expected in meeting the MCL), and thus probably not lead to an average MCL greater than one. EPA has studied the distribution of single sample and average MCL coliform violations as a function of supply system size. A relatively small number of systems serving over 9,400 would potentially be affected if the amendment were made applicable to them. Thus, no changes were made and the provisions are only to apply to systems serving 9,400 and less.

Other comments concerning the microbiological MCL are addressed in Appendix A.

Sampling and Analytical Requirements

The purpose of this amendment is to clarify that monitoring samples that are taken by the State may be used to determine compliance with the NIPDWR. The present regulations state that compliance with any MCL is to be determined pursuant to the applicable monitoring and analysis requirements set forth in Subpart C of the NIPDWR. However, the monitoring and analysis requirements are directly applicable to the suppliers of water, and it is unclear as to whether the results of such compliance sampling performed by the supplier were meant to be the only samples that could be used to determine compliance with the regulations.

The language of this amendment specifies that the State in a primacy State or the EPA in a non-primacy State under Subpart C of the NIPDWR has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by their sanctioned representatives and agencies.

There were no major issues concerning this amendment and thus, no changes were made to the proposed amendments. Specific comments are addressed in Appendix A.

Alternate Analytical Methods

The NIPDWR specify, in most cases, a single analytical procedure for determining the concentration of each contaminant. However, § 141.27 states that alternate analytical techniques may be used with the written permission of the primacy agency, and with the concurrence of the Administrator of the

EPA. Proposals for an alternate method for nationwide use are initially evaluated by the EPA's Environmental Monitoring and Support Laboratory (EMSL) with final review by the EPA's Office of Drinking Water. In order for an alternate method to be approved, it must be deemed substantially equivalent to the prescribed test in precision and accuracy. In addition, the use of an alternate analytical method for determination of compliance with any MCL does not change the frequency of monitoring required.

A number of alternate analytical techniques have been approved by EPA at the request of some States. These techniques have been determined to be equivalent methods and are now acceptable for determining compliance with the NIPDWR. All analytical procedures will be thoroughly reviewed as part of the development of Revised Regulations, and precision and accuracy requirements, as well as the type and amount of supporting documentation to support inclusion as an acceptable method, will be more carefully defined.

EPA is postponing final approval at this time to a proposed alternate turbidity standard, "Nephelometric Method with Styrene Divinyl Benzene Polymer Standard," proposed at § 141.22(a). EPA had made final approval of this standard conditional upon receipt from the manufacturer, Amco Standards International, of information related to the preparation and use of the standard. Amco has not submitted the necessary information and thus, the reference and footnote 4 to this reference has been deleted from the final regulations. EPA is requesting submission of any relevant information on the issue of final approval or disapproval of this standard on or before October 27, 1980.

No major issues were raised by the commenters, and thus, with the exception of deleting the reference to the "Nephelometric Method with Styrene Divinyl Benzene Standard," there were no changes to the proposed amendment. However, commenters suggested updating the list of approved analytical techniques as presently specified in the NIPDWR, and adding them to their appropriate sections. The updated methods have been included.

The atomic absorption furnace techniques for most metals requiring monitoring by the NIPDWR have been published in the 1979 EPA "Methods for Chemical Analysis of Water and Wastes," and are available from ORD Publications, CERL, U.S. EPA, Cincinnati, Ohio 45268.

The alternate analytical methods, now approved, and several referenced ASTM

methods, essentially identical to the originally specified procedures, have been updated and added to their appropriate parts of §§ 141.22, 141.23, 141.24 and 141.41. In the proposal these analytical techniques were listed under § 141.27(b) which has now been deleted.

In addition, reference has been added to several sections of "Microbiological Methods for Monitoring the Environment, Water and Wastes," U.S. EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268—EPA-600/8-78-017, December 1978. Available from ORD Publications, CERL, U.S. EPA, Cincinnati, Ohio 45268.

Specific comments are addressed in Appendix A.

Reporting of Compliance Data

The NIPDWR presently requires that results of monitoring be reported to the State within 40 days following a test. Under these provisions, it can take almost two months to assure compliance and, in some cases, this can defeat the possibility of prompt corrective action. Thus, the intent of the proposed amendment was to shorten the time period between sampling and reporting. The provisions of the proposal would have required that the supplier of water report to the State its analytical results within 10 days following receipt of such results; analyses performed more frequently than once per month, such as turbidity and coliforms, could be reported at one time by the tenth day of the month following the month in which the samples were analyzed. However, the preamble of the proposal described the proposed amendment as requiring the supplier to report all results to the State no later than the tenth day of the month following the month in which sample results were received.

Commenters were most concerned with the possibility of having to report to the State within 10 days of receipt of results. Based on these comments, the amendment has been changed to require the supplier of water to report to the primacy agency its analytical results within the first ten days following the end of the required monitoring period as designated by the State, or within the first ten days following the month in which the sample results were received, whichever of these is shortest.

This amendment will encourage earlier reporting of analytical results to the primacy agency without inconvenience to the supplier and minimize clerical work by facilitating the reporting of all parameters at the same time.

Some States currently require coliform and turbidity results to be submitted at a mid-monthly rather than at an end of

month frequency. The wording of the amendment maintains uniform reporting requirements for all States. The amendment also ensures that non-community systems which might only be required to conduct quarterly coliform monitoring, will report their results within the same time constraints as community systems.

In addition, a statement has been added to the NIPDWR which clarifies that the water supplier must submit upon request to the State copies of any records required to be maintained by the NIPDWR.

Review of Major Issues—Reporting of Compliance Data

Six of the twelve commenters felt that a required reporting time of ten days was unnecessary. Most indicated that the problems of immediate health risk are considered in the NIPDWR which requires that violations of an MCL be reported to the primacy agency within 48 hours. Some of these commenters alleged that contaminants to which the ten days reporting requirement applied posed potential chronic rather than acute health risks; thus, they considered it illogical to require such a short response time for State notification of results. Several commenters indicated that allowing water suppliers more time to report results would permit them to equalize their work load.

The purpose of having a shorter required reportage time is to allow the primacy agency to determine more quickly those systems which do not report their MCL violations within 48 hours, and to begin corrective action as soon as possible. This particularly pertains to coliforms which potentially indicate immediate health risks. Contaminants which only pose chronic health risks should also be reported within the same time frame since no inconvenience will be imposed upon the supplier. Requiring shorter reporting times for coliforms and turbidity would be impractical because of their high monitoring frequency. EPA considers it illogical to require a shorter reportage time for the parameters other than coliforms or turbidity since their health risks tend not to be so imminent. Therefore, the amendment has been changed to provide for simultaneous reporting of all parameters. The amendment should reduce the reportage time for most parameters by about one half without further inconvenience to the supplier.

Public Notification

Under section 1414(c) of the SDWA and 40 CFR 141.32 of the NIPDWR, a community water system is required to

notify the public immediately through notices in the newspaper, radio and television media of any failure to comply with an applicable MCL in addition to notifying its customers through water bills or by direct mail within three months of such failure.

An amendment to § 141.32(b) has been added to provide greater latitude to the States to waive the media notification requirements, applicable to a community water system under circumstances where such notification would not be meaningful; that is, where a violation has been corrected promptly after discovery, the cause of the violation has been effectively eliminated and the violation no longer poses a risk to public health. Consumer notice as required by § 141.32(a) would remain unchanged by this amendment.

This limited modification of the media notification requirements is authorized by the SDWA and is consistent with its legislative history. Section 1414(c) gives the Administrator the discretion to establish by regulation the form, manner and frequency for giving public notice. It was contemplated that such regulations would be reasonably designed to implement the purposes of the SDWA, while not unduly burdening public water systems with unnecessary and counter-productive requirements. Thus, in House Report No. 93-1185 accompanying the SDWA, Congress explained that:

The purpose of this notice requirement is to educate the public as to the extent to which public water systems serving them are performing inadequately in light of the objectives and requirements of this bill. Such public education is deemed essential by the Committee in order to develop public awareness of the problems facing public water systems, to encourage a willingness to support greater expenditures at all levels of government to assist in solving these problems, and to advise the public of potential or actual health hazards.

This public education function is well served by consumer notification of any failure to comply with a MCL, as well as media notification of continuous violations, repeat violations, or where the cause of the violation has not been duly corrected. Violations of MCLs, other than coliforms, the cause of which has been promptly corrected, would probably not have posed serious health problems. Moreover, since the State is required to make an affirmative determination that a waiver of media notification is appropriate for any given circumstance, such waivers can certainly be denied where media notification would be meaningful in terms of advising the public of any serious problem. No waiver would be appropriate, for example, where a system had a history of violations or

where only interim measures had been taken to correct the problem. The good faith efforts of the system to comply and the nature and degree of the violation should also be taken into account.

The House Report accompanying the passage of the SDWA also supports an interpretation that Congress intended that the three-month consumer notice would be sufficient under most situations to notify the public of corrected violations. Thus, Congress stated: "The Administrator's regulations should also require that the three-month notice include all violations not previously reported, even though they have been corrected at the time of notification" (emphasis added, p. 24). The three-month notice requirement refers to the consumer notice required by § 141.32(a). This language is interpreted as providing greater latitude to the Administrator to allow for waiver of the § 141.32(b) requirements of media notification for corrected violations under appropriate circumstances, provided that the purposes of the SDWA are not violated or circumvented. This is consistent with Congress concern that public notification not unduly alarm the public.

This amendment attempts to be responsive to comments received from States and public water systems which expressed concern regarding the necessity and expense of media notification. Such expense is surely warranted where the public is informed of recurring violations or violations of a continuous nature. However, where violations have been corrected promptly after discovery and the cause of the violation has been effectively eliminated, such expense becomes less justified. EPA does not allow for waiver of the media notification requirements for every case where a violation has been corrected prior to the time that the notice would be issued. The public education function of the media notification requirements will still be served under most circumstances.

In addition, § 141.31(d) has been added which requires water systems to submit to the State, within ten days of the completion of issuance of public notification, a representative copy of each type of notice distributed, published, posted, and/or made available to the persons served by the system and/or to the media.

Monitoring for Sodium in Drinking Water

This amendment requires (1) monitoring of sodium levels in drinking water by community water supply systems at least annually for surface water systems and at least every three

years for systems using groundwater sources. In addition, (2) suppliers must report the levels to EPA and/or the State within the first ten days of the month following the month in which the sample results were received and (3) suppliers must also notify local and State public health authorities. Suppliers are not required to notify local authorities where the State provides such notices in lieu of the supplier. The effective date of the regulation is 18 months from promulgation which should provide sufficient time for States to adopt the regulations. The first round of sampling and reporting must be completed by all systems within 12 months following the effective date.

Two provisions which were proposed have been changed. These changes include revisions in the time for reporting and deleting the direct public notification requirement.

Sodium ions naturally occur in water from leaching of surface and underground salt deposits, intrusion of sea water into fresh aquifers, and from salt spray along the seacoast. Human activities such as deicing, municipal use (e.g. urine and washing products), and types of water treatment (e.g. softening, pH adjustment) also contribute to increased levels of sodium in water. However, drinking water is usually a very minor source of total dietary sodium except for persons on sodium-restricted diets.

Evidence indicates that excessive sodium intake contributes to an age related increase in blood pressure that culminates in hypertension in genetically susceptible people (NAS, Drinking Water and Health, 1977). The NAS has estimated that about 15 to 20% of the population are at risk of developing hypertension.

Intake from food is generally the major source of sodium. However, in many instances, where high sodium concentrations in the drinking water occur, the contribution of sodium by water may constitute a significant fraction of the total sodium intake. About 3% of the population is on sodium-restricted diets calling for sodium intake of less than 2,000, 1,000 or 500 mg/day. Where water supplies contain more than 20 mg/l, dietary sodium restriction to less than 500 mg/day is difficult to achieve and maintain (NAS, 1977). Therefore, knowledge of the sodium ion content of the water supply and maintenance of it at the lowest practicable concentration is critical in arranging diets for persons who require a low sodium diet. EPA suggests that sodium levels of 20 mg/l or less in drinking water be considered as optimal.

The current NIPDWR (40 FR 59566) do not contain a monitoring requirement for sodium. The NAS included sodium in its study of the health effects of inorganic chemicals and recommended that sodium concentrations in water should be maintained at the minimum possible, and that provisions should be made for notifying persons on low sodium diets. In response, EPA is establishing monitoring and reporting requirements for sodium. In addition, EPA recommends that systems having sodium levels above 20 mg/l should examine their present treatment systems in order to minimize sodium levels; in some cases, systems are adding sodium containing compounds to the drinking water for such corrosion control or for other purposes but frequently alternate corrosion control methods are available and are similarly cost-effective.

Sodium monitoring was one of the issues of a petition for review of the NIPDWR. *EDF v. Costle*, 578 F. 2d 337, 347 (D.C. Cir. 1978). EDF urged that monitoring for sodium should be mandatory rather than voluntary. The Court indicated that the study carried out by NAS may aid EPA in re-evaluating its approach to sodium. The 1977 Amendments to section 1414(c) and 1445(a) of the SDWA also clarified EPA's authority to require monitoring, reporting and public notification of levels of any contaminant for which an MCL has not been established.

This amendment establishes special monitoring, reporting and notification requirements for sodium, an otherwise unregulated contaminant, as now authorized by the SDWA. Although it appears in 40 CFR Part 141, it is not, strictly speaking, a NIPDWR. Therefore, it has been included in Subpart E of Part 141 which was established when EPA promulgated special monitoring requirements for organic chemicals in drinking water in 1975 (40 FR 59588, December 24, 1975). States will not be required to adopt these special requirements for sodium as a condition for maintaining or obtaining primary enforcement responsibility under section 1413 of the SDWA. These requirements will be enforceable by EPA under the separate enforcement authorities provided under section 1414(c) of the SDWA. Nevertheless, States are urged to adopt these requirements as State drinking water regulations to minimize the federal enforcement role in primary States. The sodium requirements will be effective 18 months following promulgation to afford States ample time to adopt them. Systems must complete the first round of

sampling within 12 months of the effective date.

The purpose of a sodium monitoring program is to assure that affected persons are informed, so they can make necessary adjustments in water usage. Suppliers of the water will be required to report to EPA and/or the State the results of such sodium monitoring within the first 10 days of the month following the month in which the sample results were received. Suppliers of water are required to notify appropriate local and State public health officials of the sodium levels by written notice within three months of receipt of results. However, where the State has adopted this regulation and provides the notice to the local and State public health officials, the supplier may be relieved of this particular notice requirement. A copy of each notice sent in compliance with these requirements must be sent to EPA (or the State) within 10 days of its issuance.

Review of the Major Issues—Monitoring for Sodium

In the proposal, EPA solicited comments on the merits of the proposed notification requirements, the feasibility of establishing an appropriate MCL for sodium, factors for determining the appropriate monitoring frequency, and the proposed effective date for implementing the regulation.

Of the 55 comments received on the proposed monitoring requirements for sodium, 22 expressed general support but indicated specific reservations, 25 presented no value judgment but made specific comments, and 8 were opposed.

The proposed amendment would have required suppliers to directly notify the public of the sodium concentrations in their water. EPA suggested that suppliers could implement such notification by including sodium concentrations on their water bills or any other convenient means.

Twenty-nine out of the fifty-five comments received on the proposed sodium amendment opposed direct consumer notification. Most of these commenters favored public notification via health agencies and physicians, permitting the public to be informed through these resources upon their own request. Eight commenters thought that such notification should only be required if the sodium levels were "high" (e.g., 20 to 270 mg/l). The main objection to direct consumer notification was that since only a small fraction of the population is affected by sodium, an unnecessary burden would be placed on the supplier. Many thought that the public would be confused or falsely alarmed over reported sodium

concentrations on water bills; several indicated that space for proper clarification on the water bill would be lacking and that the printing and distribution of additional material by the suppliers would be costly. A few commenters expressed concern over the logistic problems of consumer notification, noting that in some locations such as apartment complexes, residents are not billed independently. Some commenters considered it illogical to notify the public of sodium content in water when this was not being done for foods which are the more significant source.

Nine commenters favored direct consumer notification (as proposed) provided that the requirement only pertain to supplies having "high" sodium concentrations (e.g., 20 to 250 mg/l). Only a few commenters indicated support for direct consumer notification for all systems.

EPA has deleted the direct public notification requirement. The final amendment requires suppliers of water to report their sodium concentrations to EPA and/or the State and to designated local and State public health officials. If the State notifies the local and State public health officials, public water systems are relieved of this requirement. The public and physicians can be informed of sodium levels in their water by contacting their local public health office, the State, or water system. Of course, systems can opt to regularly report sodium concentrations to the public along with other primary or secondary regulation parameters, as some already do.

Suppliers with sodium concentrations above 20 mg/l should prevent further increase in their levels during the treatment process. At this time, EPA does not expect systems to apply treatment technology to reduce their sodium levels below that of their raw water source because of the high cost of the only available treatment technology.

Nine of the seventeen commenters who addressed the feasibility of establishing an MCL were opposed to such a requirement, mainly because of the lack of available cost-effective technology for reducing sodium levels. Some commenters felt that not enough evidence is available to implicate sodium as a health risk. Several commenters thought that an MCL would be inappropriate since the percentage intake of sodium in water relative to food tends to be very small; an MCL would thus only affect a very small percentage of people on restricted sodium diets, who in turn could buy bottled water for an overall more cost-effective solution.

Eight commenters suggested that if an MCL were established it should be higher than EPA's stated goal of 20 mg/l (ranging from 100 to 250 mg/l). Otherwise, too many supplies would not be able to meet the level without incurring very high treatment costs. The commenter also stated that a low MCL would also conflict with EPA's corrosion control objectives since sodium compounds are sometimes the most cost-effective treatment.

EPA recognizes that the available technology for sodium removal is expensive and would not necessarily be cost-effective to meet national regulations at this time. At this time, insufficient data is available on the significance of risk from sodium in drinking water and thus setting an MCL is now not appropriate. However, the Agency will reconsider if additional data becomes available. The health risks related to sodium intake are further discussed in responses to specific comments in Appendix A and in the Statement of Basis and Purpose.

In the preamble to the proposed regulations, EPA stated that 20 mg/l of sodium was a goal. Many commenters felt that this was an unrealistic statement considering the lack of available cost-effective treatment technologies; EPA recognizes the difficulty that many systems would have in achieving a level of 20 mg/l and the statement has been revised to state that 20 mg/l or less of sodium should be considered as an optimum for drinking water. Suppliers having raw waters above 20 mg/l are encouraged to minimize the addition of sodium compounds in their treatment process. Water systems should be sensitive to the levels of sodium in their drinking water sources and evaluate treatments that avoid the addition of sodium, such as by using lime when possible rather than soda ash to adjust the pH for corrosion control.

Most of the commenters raised no objections to the proposed monitoring frequencies. Of the 8 comments responding to this issue, 6 thought higher monitoring frequency should be required due to the variability of sodium concentrations, 3 suggesting that the State or primacy agency determine such frequencies on a case-by-case basis. Other comments suggested basing the monitoring frequency on population served, and applying the same monitoring frequency to surface as well as groundwater.

The amendment sets a specified minimum frequency for surface and groundwater systems and includes provisions which would encourage States to implement more frequent

monitoring where needed. Since groundwaters tend to have more stable sodium concentrations than surface waters, they are not required to be monitored as frequently. In regard to monitoring on the basis of population served, EPA believes this would add unnecessary costs; monitoring frequency should be based on variability of concentration rather than population. Coliform monitoring requirements are based on population because they are indicators of potential acute health risk, and because their presence is susceptible to high variation in case of failure in the water treatment process.

Three commenters objected to implementing the regulation 18 months following promulgation. Two preferred that additional time be provided but one suggested instituting the effective date two months following promulgation since no treatment modifications would be needed to meet an MCL.

EPA is strongly urging the States to adopt these requirements to minimize the federal role. EPA believes that 18 months will provide sufficient time for States to formally adopt these requirements and systems can complete the first round of sampling and reporting within an additional 12 months.

Other comments are addressed in Appendix A and the costs and economic impact associated with the sodium requirements are discussed below under the subheading, "Economic and Energy Assessment."

Corrosion Control

The final regulations on corrosion control have been changed and include specific requirements for public water systems to (1) identify the presence of specific types of materials used in distribution systems and to (2) monitor several corrosivity-related characteristics for a duration of one year. The proposal set forth a corrosion control program that would have initially required monitoring to assess the corrosivity of the water, followed by implementation of corrosion control measures. Commenters stated that although control of corrosion was an important concern the proposed corrosion control program lacked specific requirements. As discussed in the preamble to the proposed regulations, the problems of corrosive waters are unique to the circumstances in each public water system in that the quality of water varies, existing treatment systems can impact the corrosive nature of the water, and the occurrence and distribution of materials of construction of the distribution system are specific to each system. Thus, regulations were proposed to

control corrosion and corrosion by-products by implementation of corrosion control programs under the direction of the State; the program was to include monitoring for corrosivity characteristics, and implementation of control measures where needed. It was anticipated that the EPA regulations would provide direction but the actual corrosion control programs at each public water system could best be determined at the State and local level.

Sixty-eight comments were received concerning the proposed corrosion control program. The consensus was that the proposal lacked specific criteria and guidelines for methods, procedures, and implementation of the corrosion control program. Other commenters opposed the establishment of MCLs for corrosion that would be based upon one or more of the corrosivity indices. Some of these commenters, however, suggested that the indices may be used to identify corrosive waters. Other commenters suggested that regulations for control of corrosion should be based upon specific MCLs for contaminants resulting from corrosion. Similarly, several commenters felt that since MCLs are already established for the common corrosion by-products of lead and cadmium, corrosion control should be implemented through monitoring and meeting the MCL requirements.

The commenters agreed with the Agency that corrosion is a complex phenomenon and the occurrence of corrosion-related contaminants is not uniform in water supply systems. The proposal took into account that in many instances corrosion-related problems may be unique to each water supply system. Thus, the Agency was not specific in order to provide as much latitude as possible to the States and suppliers to detect, evaluate and solve corrosion related problems in a feasible and economical manner, and on a case-by-case basis if necessary.

The Agency believes that corrosion is a very significant concern not only affecting the aesthetic quality of the water but having a serious economic impact and posing health implications. Corrosion by-products containing materials such as lead and cadmium have been associated with serious risks to the health of consumers of drinking water. In addition, by-products of corrosion commonly include such compounds as zinc, iron, and copper for which secondary MCLs have been set in the NSDWR; occurrence of these compounds, as a result of corrosion, should be considered indicators of potential health risk because, as stated in the NSDWR, high levels of

contaminants in the NSDWR can pose a health risk; also, if corrosive waters are leaching these compounds from piping materials, it is very likely that other compounds of health concern are also leaching from the pipes. Further, a number of epidemiological studies indicate that there may be an increased incidence of cardiovascular disease associated with the consumption of soft waters, which tend to be corrosive (however, this subject is still under investigation).

Results of two independent studies estimate that approximately 16% of the public water systems in the United States distribute waters that are highly aggressive ($LI < -2.0$), while an additional 52% distribute moderately aggressive waters ($-2.0 < LI < 0.0$). It is also known that only a limited number of these systems have instituted corrosion control measures.

The Agency carefully evaluated the merits of the issues raised by the commenters. EPA maintains that corrosion control is a serious concern and implementation of a corrosion control program would best be accomplished on a case-by-case basis. In addition, it is apparent that specific directions are desirable to initially identify distribution system materials subject to attack by corrosive waters and to identify corrosive waters followed by careful on-site evaluations of control options.

Originally, the Agency considered the use of the Aggressive Index (AI), the Ryznar Index (RI) and the Langelier Index (LI) to determine the corrosive tendencies of the water. These indices are not a direct measure of the corrosivity of the water but rather are indicators of the calcium carbonate stability which may be used to predict whether or not a calcium carbonate ($CaCO_3$) layer may be deposited and maintained on pipe surfaces to protect against corrosion. The Agency recognizes that these indices may not be ideal as a determinant for corrosive characteristics of drinking water in all instances.

The Langelier Index defines the tendency of the water to form or dissolve calcium carbonate scales by comparing the saturation pH of the calcium carbonate (pHs) with the measured pH of the water, $LI = pH - pHs$. While negative values resulting from the difference between pH and pHs express the tendency of the water to be corrosive, positive values express a supersaturated condition indicating the formation of a protective scale of calcium carbonate on interior surfaces of the distribution system. At equilibrium, the LI has a value of 0.

The RI, which is a variation of the LI, is also calculated from the pHs of calcium carbonate saturation by the formula, $RI = 2 \text{ pHs} - pH$, and provides an indication of the relative scale forming or aggressive tendencies of the water. Calcium carbonate scale deposition increases proportionally as the index drops below 6, and corrosion increases as it rises above 6, with extremely aggressive conditions for values of 10 and above.

In calculating the RI and LI, the pH, alkalinity, hardness, temperature and the TDS content of the water are taken into consideration. The AI, established as a criterion for determining the quality of the water that can be transported through asbestos cement pipe without adverse effects, is calculated from the pH, calcium hardness in mg/l as $CaCO_3$ (h) and the total alkalinity in mg/l as $CaCO_3$ (A) of the water by the formula $AI = pH + \log(AH)$. The AI does not consider the effects of temperature and TDS on the corrosive tendency of the water. An AI of 12 or above indicates non-aggressive water, while values of 10-11.9 is a possible indication of moderately aggressive conditions. AI values below 10 indicate extremely aggressive conditions.

The formation of a protective $CaCO_3$ layer is dependent on the pH, alkalinity, hardness, total dissolved solids (TDS) and the temperature of the water, each of which may independently affect the corrosive tendencies of the water. For instance, soft low alkalinity waters having either low or excessively high pH are corrosive even though the calculated LI may indicate non-corrosive tendency. In these instances, due to the insufficient amount of calcium ions and alkalinity, no protective $CaCO_3$ film can form. Since the materials used in distribution systems to convey the water are often amphoteric in nature, with the exception of asbestos cement or plastic pipes, corrosion will occur when either excessively low or high pH waters are conveyed.

Waters having high pH values and sufficient hardness and alkalinity may also exhibit corrosive tendencies even though the LI indicates non-corrosive conditions. At high pH levels formation of various calcium and magnesium complexes may result in the removal of calcium and alkalinity from active concentrations of their normal form thus preventing the formation and maintenance of a protective $CaCO_3$ layer. Since analytical procedures fail to distinguish between these forms, deposition of a $CaCO_3$ film may not be predicted reliably using any of the calcium carbonate saturation indices.

The corrosive tendencies of the water to particular metals such as the ones used in distribution systems are also significantly influenced by the amount of TDS. Waters containing TDS exceeding 150 mg/l may exhibit corrosive tendencies. The presence of various ions such as sulfates and chlorides in the water may interfere with the formation and maintenance of a uniform protective $CaCO_3$ layer on metal surfaces. In addition, the presence of these ions will accelerate the corrosion process.

Because of the influence of the various parameters involved, it is generally agreed that the LI may only be applicable to determine the corrosive tendencies of the water within a pH range of 6.5 to 9.5 provided that a sufficient amount of calcium ions and alkalinity over 40 mg/l are present in the water.

In response to comments and in continuing to emphasize that corrosion is a serious concern, a revised strategy has been developed regarding the control of corrosion-related contaminants in public water supply systems; the Agency has decided to confront the problem of corrosion by four steps as follows:

- (1) Require systems to determine the presence of specific materials of construction of the distribution system;
- (2) Require monitoring for parameters influencing the corrosivity characteristics of water by community water systems;
- (3) Encourage through State direction and assistance the implementation of corrosion control measures at systems distributing corrosive waters;
- (4) Require systems with corrosive waters and distribution materials vulnerable to contamination due to corrosion to increase monitoring for corrosion by-products, such as lead, cadmium, zinc, copper and iron.

In order to accomplish these goals, the Agency is taking the following steps:

- (1) Requirements are being established by these regulations to determine the presence of specific materials in distribution systems and to monitor for characteristics of corrosivity; only one year of monitoring and reporting is required in order to assess the corrosivity characteristics of the water;
- (2) EPA will also provide guidance to States to assist in accessing the problems of corrosivity and the most cost-effective treatment methods; and
- (3) A separate rule-making will propose regulations for increased monitoring for other corrosion related contaminants.

In recognition of the importance of the role of various parameters affecting the corrosivity of the water, the final regulations include specific requirements for monitoring and reporting the pH, alkalinity, hardness, and TDS of the water in addition to the LI. A number of States have already established requirements for reporting and monitoring of some of these parameters plus sulfate and chloride levels which are included in the National Secondary Drinking Water Regulations; States are encouraged to require monitoring for sulfate and chloride levels as indicators of corrosivity characteristics. The Agency feels that knowledge of these parameters in addition to the LI will provide a better basis for evaluating the corrosive tendencies of waters. In certain instances, where asbestos cement pipe is in contact with the water, the AI may be reported instead of the LI.

These regulations finalize the initial step in the proposed corrosion control program; systems will identify the types of materials used in their distribution systems and will determine if the waters being distributed have corrosive characteristics. For systems distributing corrosive waters, it is expected that corrosion control measures would be implemented under the direction of the State.

Inclusion of the requirement that the community water supply system identify and report to the State the materials of construction in the distribution system including service lines and home plumbing is to assure that the potential for the occurrence of corrosion by-products is known. Systems must complete their assessments and report to the State within 12 months of the effective date of the regulation.

Occurrence of corrosion related contaminants, such as lead, cadmium, copper, iron, zinc and asbestos, is a function of both water quality and distribution system factors. Thus, in addition to determining the corrosive nature of the water, the water supplier should determine and report whether the following materials of construction are present in the distribution system:

1. Lead used in piping, solder, caulking, interior lining of distribution mains, alloys and home plumbing.
2. Copper used in piping and alloys, service lines, and home plumbing.
3. Galvanized piping, service lines, and home plumbing.
4. Ferrous piping materials such as cast iron and steel.
5. Asbestos cement pipe.

In addition, other distribution system materials have been shown to contribute contaminants to the drinking water;

tetrachloroethylene has been measured in some waters distributed through vinyl lined asbestos cement pipe, and polynuclear aromatic hydrocarbons have been found in some waters distributed through piping and tank materials coated with coal tar. Thus, States are provided the discretion to require systems to identify and report the use of other types of materials, such as vinyl lined asbestos cement pipe or coal tar lined materials.

A number of approaches are available to determine the presence of materials in distribution systems which have the potential for contaminating drinking water supplies. These include, among others, general knowledge of the system along with consulting records and knowledge of plumbing codes and practices, surveys at the consumers' homes, questionnaires, and possibly meter readers gathering information.

While the regulations only require community water systems to determine the presence of the above materials, it is recommended that the systems, in considering the potential for corrosion problems, will also determine the extent of usage of the materials in the distribution system; this would allow for evaluation of the significance of the potential for release of corrosion by-products into the drinking water. Availability of this information regarding water quality and the presence of specific materials of construction will enable the primary enforcement agency to determine which water supply system should initiate corrosion control measures.

In addition, regulations will be proposed in a separate rule-making that will require increased monitoring for corrosion by-products, such as lead and cadmium, for systems distributing potentially corrosive waters with materials in the distribution system that could contribute corrosion by-products to the drinking water. In those cases where the monitoring showed MCLs to be violated, it is expected that corrosion control measures would be implemented.

Summary of the Corrosion Characteristics Regulations

The regulations being promulgated are:

- (1) All community water supply systems are to collect and analyze samples to determine the corrosive characteristics of the water by monitoring and reporting the alkalinity, pH, hardness, temperature, TDS of the water; also, the Langelier Index must be reported which can be calculated from the above parameters. The regulations provide that certain systems may report

the Aggressive Index (AI) in lieu of the Langelier Index since the AI may be more appropriate for certain systems that use asbestos-cement pipe; the State is provided the discretion to make this determination.

Monitoring for the above parameters to define the corrosivity characteristics of the water need not be repeated after the initial round(s) of sampling; however, States are provided the discretion to require additional monitoring. The effective date of the regulations is 18 months following the promulgation date. The monitoring and reporting requirements must be completed within 12 months following the effective date of the regulation. This will provide States sufficient time to adopt these regulations and assure that systems have conducted the monitoring. Systems are encouraged to conduct the monitoring as early as feasible.

(2) Samples shall be taken at each plant at a representative entry point into the distribution system. Sampling is specified at a representative entry point of the distribution system because substances within the distribution system could influence the corrosive characteristics of the water. For instance, water passing through asbestos-cement pipe tends to become less aggressive because of an increase in hardness and pH resulting from the leaching of calcium salts. Two samples within one year are to be taken from each treatment plant using a surface water source in order to account for the extremes in water quality variations, such as one sample in mid-summer or one sample in mid-winter (or high flow, low flow). During the course of the year, surface waters may undergo significant variations in pH, hardness, alkalinity, total dissolved solids and temperature which can influence the aggressiveness of the water. For instance, the total dissolved solids (TDS) content and the hardness of the water may vary considerably during periods of seasonal drought or rainfall. Addition of industrial discharges or "acid rain" may significantly affect the pH of the water, dependent upon the amount of water contributed relative to the size of the receiving body of the water. Variations in pH of the water may also be influenced by the natural buffering capacity of the water. Thus, to account for changes in water quality, surface water systems are required to determine the corrosivity characteristics twice during one year, taking each sample when the water quality is at an extreme for the year.

For groundwater sources, one sample per plant is required; less frequent

monitoring is appropriate for ground water systems because the quality of the water is relatively constant. Multiple wells from a common aquifer can be considered a single plant in regard to sampling requirements. States upon their discretion may increase the sampling requirements.

In certain cases the State may allow the use of the AI instead of the LI to determine the corrosivity of the water. In addition, the States may also require additional monitoring in instances where it is felt that the use of the LI would be inadequate as an indicator of the corrosive tendency of the water. The RI, which is based upon the same parameters as the LI is slightly more complicated to determine than the LI and the results indicate similar characteristics as the LI; thus, the RI was not included in these regulations. Use of the AI, which is less sensitive than the LI (i.e., the AI does not take into account the temperature and TDS of the water), is appropriate primarily for those systems which use asbestos-cement pipe in the distribution systems.

Table 1 summarizes the corrosivity characteristics associated with the Langelier and the Aggressive Indices.

Table 1.—Corrosivity Characteristics as Addressed by Indices¹

Corrosive characteristics	Langelier index	Aggressive index
Highly aggressive	< -2.0	< 10.0
Moderately aggressive	-2.0 to < 0.0	10.0 to < 12.0
Nonaggressive	> 0.0	> 12.0

¹ As noted previously, indices may be an appropriate measure of corrosive characteristics in all cases.

(3) All community water supply systems are required to determine the presence and report to the State the materials of construction of the distribution system including service lines and home plumbing.

Systems are expected to implement corrosion control measures if the monitoring results indicate corrosive characteristics based upon the individual parameters or as indicated by the LI or AI. States are encouraged to provide directions and technical assistance to the public water systems in evaluating options for corrosion control. A discussion on available corrosion control treatment methods is included in the Statement of Basis and Purpose.

Analytical and Economic Considerations

The analytical methods to determine the parameters influencing corrosivity do not generally require sophisticated equipment or procedures. To calculate

the LI (Standard Method No. 203, 14th Edition, as shown in Appendix B), it is necessary to determine the methyl orange alkalinity, calcium ion concentration, pH, temperature and total dissolved solids (TDS). The pH and temperature will have to be determined at the sample site, while the other parameters can be determined at the laboratory (Standard Methods #208, 212, 306, 403 and 424, 14th Edition). To calculate the AI, it is necessary to measure the alkalinity, calcium ion concentrations, and the pH. For details on the LI and the AI, see Appendix B.

The estimate for determining the LI, which includes all of the required parameters, by a commercial laboratory is approximately \$20 (measurement of AI would be less). Based upon this estimate, the total national cost for the approximately 60,000 public water supply systems covered by this regulation is estimated to be \$1.5 million. One time per capita costs for the smallest surface and groundwater systems (serving 25 people) are \$1.60 and \$0.80, respectively. One time per capita costs for the largest systems of both source types are expected to be less than \$0.01. Costs for each system associated with the determination of the presence of materials in distribution systems are expected to be minimal. The majority of systems could probably accomplish this very quickly based upon common knowledge of local construction practices.

Additional information is presented in the Basis and Purpose Document and detailed comments and Agency responses are included in Appendix A.

Non-Community Water Supply Systems

The amendments for non-community water supply systems promulgated herein do not, with two exceptions, vary from those that were proposed in July 1979. The conditions for allowing nitrate levels up to 20 mg/l have been revised and the specific condition requiring the absence of nitrite has been deleted. However, levels above one mg/l nitrite should not be exceeded and States should take this factor into consideration when evaluating the applicability of this amendment to public water systems. In addition, the non-community system is required to notify annually appropriate local and State public health officials that the nitrate levels exceed 10 mg/l. The other revision was an extension of the deadline for nitrate monitoring for an additional six months to a total of 18 months beyond the original deadline of June 24, 1979. Not all non-community systems have been able to complete the monitoring and the revised deadline of

December 24, 1980, should provide sufficient time for non-community systems to meet the requirements. The comments received on the other amendments involving the non-community water supply systems did not contain sufficient new information to require changes. The most significant comments involving the nitrate MCL are discussed below, while detailed analyses of these and other comments regarding the amendments for non-community water supplies are provided in Appendix A.

The majority of commenters supported the proposed amendment of the regulations which provides that nitrate levels up to 20 mg/l may be allowed for non-community systems. However, the commenters objected to the fourth and fifth conditions of the provision which stipulated that the supplier of water must demonstrate, to the satisfaction of the State, that "(4) no nitrites are present in the drinking water," and that "(5) no adverse health effects will result." These commenters indicated that the analytical test is extremely sensitive, and that in most cases, a measurable trace of nitrite would likely be present; thus, this condition could rarely, if ever, be met by the non-community water system. Some commenters suggested that a "realistic" nitrite limit be set at one mg/l. The health implications of nitrite are essentially the same as nitrate in regards to methemoglobinemia except that the effect of nitrite is direct since metabolism is not required to reduce the nitrate to nitrite. For community water systems, a maximum level of one mg/l nitrite was suggested in the Basis and Purpose Document supporting the nitrate MCL in the NIPDWR and a level of one mg/l nitrite has been established in Canada based upon the occurrence of methemoglobinemia. However, since this provision for allowing up to 20 mg/l nitrate is predicated upon not allowing access to the drinking water by infants, EPA has determined that it is not necessary to set a limit for the nitrite levels; thus, the condition that nitrites should not be present has been deleted. However, levels of nitrite should not exceed one mg/l and it is suggested that, in applying this provision, States should make a judgment based upon all relevant factors for each specific system, including the levels of nitrite.

In regards to the levels of nitrite, States should also consider that significant levels of nitrite in drinking water are usually an indicator of gross contamination by agricultural practices or sewage and reducing conditions. In these cases, examination of the source

of contamination and increased monitoring for microbiological contaminants would be recommended.

While the condition on nitrite has been deleted, the condition that states "no adverse health effects will result" has been retained. This condition is the final safeguard and is left as general guidance as a contingency if the other conditions are not met.

Several commenters felt that the proposed requirement that the suppliers notify local physicians was unclear and could impose a large burden for some supplies in the suburbs of a large city. This condition has been revised so that the supplier would notify appropriate local and State public health authorities on an annual basis. It is expected that the local and State health authorities would notify appropriate physicians in the locality of the public water system.

Economic and Energy Assessment

A detailed regulatory analysis of the proposed amendments was not conducted due to the routine nature of the amendments and the expected decrease in the economic burden associated with these amended NIPDWR. Further, these amendments are generally not expected to have significant impacts upon resources or reporting requirements. The economics associated with each of the amendments are explained below. Energy impacts are negligible.

Changes in the microbiological monitoring and reporting requirements should result in unquantifiable but known savings to local water supply facilities. The savings reflect fewer public notifications. Although these savings are relatively small on a national scale, they are significant to the water utilities affected.

It is anticipated that the amendment on alternate analytical methods will have a minimal economic impact. Laboratories that are presently using equipment for new alternate methods, will have cost savings, since the need for equipment purchase for the previously approved methods will be eliminated. No changes in costs are expected in laboratories that do not adopt these procedures. The overall economic effect of the amendment on alternate techniques should be no cost increase, and in some cases a cost savings, since a greater analytical flexibility will be provided.

Changes in the regulations which affect non-community water systems will result in savings associated with reduced monitoring and public notification. Again, the extent of these reductions will be small in terms of

national costs, but may be significant for individual suppliers.

Changes in public notification requirements will decrease costs. Some of these savings will be significant for small supplies.

Changes in the fluoride regulations are only for clarification, and will not affect the associated cost in any way.

As indicated previously, a requirement for monitoring and notification of sodium concentrations in drinking water will result in new costs to drinking water utilities. Based upon \$10 per sample analysis, total national annual costs associated with this regulation are estimated to be \$450,000 with annual per capita costs for the smallest systems (25 customers) of \$0.80 for surface supplies and \$0.13 for groundwater supplies, and less than \$0.01 for the largest systems of both source types. These new costs do not impact all systems since some States already require monitoring for sodium.

Monitoring for corrosivity characteristics does not require sophisticated equipment or procedures. Determination of the Langelier Index involves measurement of hardness, alkalinity, pH, total dissolved solids, and temperature (the Aggressive Index only requires hardness, alkalinity and pH); in many cases, the water system will be able to conduct the analyses in their own laboratory. For many of the smaller systems, States will likely continue providing analytical services to the utilities. Based upon an estimate of \$20 per LI analysis by a commercial laboratory, the total one time national cost would be \$1.5 million with maximum per capita costs for the smallest systems (25 customers) of \$1.60 and \$0.80 for surface and groundwater systems, respectively, and less than \$0.01 per capita for the largest systems of both source types. Costs for each system associated with identifying the composition of materials of construction in the distribution systems are expected to be negligible.

In regard to reporting and resource impacts, it is expected that the reporting requirements will have negligible impacts because of the infrequency of monitoring and the fact that reporting would occur through the system already established and in use for compliance with the primary regulations. Thus, additional resources are not expected to be necessary at the Federal, State and local levels.

The effective date is immediately upon promulgation except that the requirements for sodium monitoring and reporting, determination of the types of materials in the distribution system, and monitoring and reporting corrosivity

characteristics will be effective 18 months after date of promulgation. The sodium and corrosion requirements must be completed within 12 months following the effective date. The Statement of Basis and Purpose Document which provides additional supporting information for the sodium and corrosivity monitoring requirements is available upon request at EPA headquarters, 401 M Street, S.W., Washington, D.C., and for reading at EPA regional offices.

Under Executive Order 12044, EPA is required to judge whether a regulation is "significant" and therefore subject to the procedural requirements of the Order or whether it may follow other specialized development procedures. EPA labels these regulations "specialized." I have reviewed this regulation and determined that it is a specialized regulation not subject to the procedural requirements of Executive Order 12044.

Dated: August 19, 1980.

Barbara Blum,

Acting Administrator.

Accordingly, 40 CFR, Part 141, is amended as follows:

1. By revising § 141.6 (c) and (d) to read as follows:

§ 141.6 Effective dates.

* * * * *

(c) The regulations set forth in 141.11 (a), (c) and (d); 141.14(a)(1); 141.14(b)(1)(c); 141.14(b)(2)(i); 141.14(d); 141.21 (a), (c) and (i); 141.22 (a) and (e); 141.23 (a)(3) and (a)(4); 141.23(f); 141.24(a)(3); 141.24 (e) and (f); 141.25(e); 141.27(a); 141.28 (a) and (b); 141.31 (a), (c), (d) and (e); 141.32(b)(3); and 141.32(d) shall take effect immediately upon promulgation.

(d) The regulations set forth in 141.41 shall take effect 18 months from the date of promulgation. Suppliers must complete the first round of sampling and reporting within 12 months following the effective date.

(e) The regulations set forth in 141.42 shall take effect 18 months from the date of promulgation. All requirements in 141.42 must be completed within 12 months following the effective date.

2. Amending § 141.11 (a) and (d) to read as follows:

§ 141.11 Maximum contaminant levels for inorganic chemicals.

(a) The MCL for nitrate is applicable to both community water systems and non-community water systems except as provided by in paragraph (d). The levels for the other organic chemicals apply only to community water systems. Compliance with MCLs for inorganic

chemicals is calculated pursuant to § 141.23.

(d) At the discretion of the State, nitrate levels not to exceed 20 mg/l may be allowed in a non-community water system if the supplier of water demonstrates to the satisfaction of the State that:

(1) Such water will not be available to children under 6 months of age; and
(2) There will be continuous posting of the fact that nitrate levels exceed 10 mg/l and the potential health effects of exposure; and

(3) Local and State public health authorities will be notified annually of nitrate levels that exceed 10 mg/l; and

(4) No adverse health effects shall result.

3. Amending § 141.11(c) to read as follows:

§ 141.11 Maximum contaminant levels for inorganic chemicals.

(c) Fluoride at optimum levels in drinking water has been shown to have beneficial effects in reducing the occurrence of tooth decay.

4. Amending § 141.14 (a)(1), (b)(1)(i), (b)(2)(i), and revising (d) to read as follows:

§ 141.14 Maximum microbiological contaminant levels.

(a) * * *
(1) One per 100 milliliters as the arithmetic mean of all samples examined per compliance period pursuant to § 141.21(b) or (c), except that, at the primacy Agency's discretion systems required to take 10 or fewer samples per month may be authorized to exclude one positive routine sample per month from the monthly calculation if: (i) as approved on a case-by-case basis the State determines and indicates in writing to the public water system that no unreasonable risk to health existed under the conditions of this modification. This determination should be based upon a number of factors not limited to the following: (A) the system provided and had maintained an active disinfectant residual in the distribution system, (B) the potential for contamination as indicated by a sanitary survey, and (C) the history of the water quality at the public water system (e.g. MCL or monitoring violations); (ii) the supplier initiates a check sample on each of two consecutive days from the same sampling point within 24 hours after notification that the routine sample is positive, and each of these check samples is negative; and (iii) the original positive routine sample is reported and

recorded by the supplier pursuant to § 141.31(a) and § 141.33(a). The supplier shall report to the State its compliance with the conditions specified in this paragraph and a summary of the corrective action taken to resolve the prior positive sample result. If a positive routine sample is not used for the monthly calculation, another routine sample must be analyzed for compliance purposes. This provision may be used only once during two consecutive compliance periods.

(b)(1) * * *
(i) More than 10 percent of the portions (tubes) in any one month pursuant to § 141.21 (b) or (c) except that, at the State's discretion, systems required to take 10 or fewer samples per month may be authorized to exclude one positive routine sample resulting in one or more positive tubes per month from the monthly calculation if: (A) as approved on a case-by-case basis the State determines and indicates in writing to the public water system that no unreasonable risk to health existed under the conditions of this modification. This determination should be based upon a number of factors not limited to the following: (1) the system provided and had maintained an active disinfectant residual in the distribution system, (2) the potential for contamination as indicated by a sanitary survey, and (3) the history of the water quality at the public water system (e.g. MCL or monitoring violations); (B) the supplier initiates a check sample on each of two consecutive days from the sampling point within 24 hours after notification that the routine sample is positive, and each of these check samples is negative; and (C) the original positive routine sample is reported and recorded by the supplier pursuant to § 141.31(a) and § 141.33(a). The supplier shall report to the State its compliance with the conditions specified in this paragraph and report the action taken to resolve the prior positive sample result. If a positive routine sample is not used for the monthly calculation, another routine sample must be analyzed for compliance purposes. This provision may be used only once during two consecutive compliance periods.

(b)(2) * * *
(i) More than 60 percent of the portions (tubes) in any month pursuant to § 141.21 (b) or (c), except that, State discretion, systems required to take 10 or fewer samples per month may be authorized to exclude one positive routine sample resulting in one or more positive tubes per month from the monthly calculation if: (A) as approved on a case-by-case basis the State

determines and indicates in writing to the public water system that no unreasonable risk to health existed under the conditions of this modification. This determination should be based upon a number of factors not limited to the following: (1) the system provided and had maintained an active disinfectant residual in the distribution system, (2) the potential for contamination as indicated by a sanitary survey, and (iii) the history of the water quality at the public water system (e.g. MCL or monitoring violations); (B) the supplier initiates two consecutive daily check samples from the same sampling point within 24 hours after notification that the routine sample is positive, and each of these check samples is negative; and (C) the original positive routine sample is reported and recorded by the supplier pursuant to § 141.31(a) and § 141.33(a). The supplier shall report to the State its compliance with the conditions specified in this paragraph and a summary of the corrective action taken to resolve the prior positive sample result. If a positive routine sample is not used for the monthly calculation, another routine sample must be analyzed for compliance purposes. This provision may be used only once during two consecutive compliance periods.

(d) If an average MCL violation is caused by a single sample MCL violation, then the case shall be treated as one violation with respect to the public notification requirements of § 141.32.

8. Amending § 141.21 (a) and (c) to read as follows and adding (i):

§ 141.21 Microbiological contaminant sampling and analytical requirements.

(a) Suppliers of water for community and non-community water systems shall analyze or use the services of an approved laboratory for coliform bacteria to determine compliance with § 141.14. Analyses shall be conducted in accordance with the analytical recommendations set forth in "Standard Methods for the Examination of Water and Wastewater," American Public Health Association, 14th Edition, Method 908A, Paragraphs 1, 2 and 3—pp. 916-918; Method 908D, Table 908: I—p. 923; Method 909A, pp. 928-935, or "Microbiological Methods for Monitoring the Environment, Water and Wastes," U.S. EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268—EPA-600/8-78-017, December 1978. Available from ORD Publications, CERL, U.S. EPA, Cincinnati, Ohio 45268. Part III, Section

B 1.0 through 2.6.2, pp. 108-112; 2.7 through 2.7.2(c), pp. 112-113; Part III, Section B 4.0 through 4.6.4(c), pp. 114-118, except that a standard sample size shall be employed. The standard sample used in the membrane filter procedure shall be 100 milliliters. The standard sample used in the 5 tube most probable number (MPN) procedure (fermentation tube method) shall be 5 times the standard portion. The standard portion is either 10 milliliters or 100 milliliters as described in § 141.14 (b) and (c). The samples shall be taken at points which are representative of the conditions within the distribution system.

(c) The supplier of water for a non-community water system shall be responsible for sampling coliform bacteria in each calendar quarter that the system provides water to the public. Such sampling shall begin within two years after promulgation. The State can adjust the monitoring frequency on the basis of a sanitary survey, the existence of additional safeguards such as a protective and enforced well code, or accumulated analytical data. Such frequency shall be confirmed or modified on the basis of subsequent surveys or data. The frequency shall not be reduced until the non-community water system has performed at least one coliform analysis of its drinking water and shown to be in compliance with § 141.14.

(i) The State has the authority to determine compliance or initiate enforcement action based upon analytical results or other information compiled by their sanctioned representatives and agencies.

9. Amending § 141.22(a) to read as follows and adding (e):

§ 141.22 Turbidity sampling and analytical requirements.

(a) Samples shall be taken by suppliers of water for both community and non-community water systems at a representative entry point(s) to the water distribution system at least once per day, for the purpose of making turbidity measurements to determine compliance with § 141.13. If the State determines that a reduced sampling frequency in a non-community system will not pose a risk to public health, it can reduce the required sampling frequency. The option of reducing the turbidity frequency shall be permitted only in those public water systems that practice disinfection and which maintain an active residual disinfectant in the distribution system, and in those

cases where the State has indicated in writing that no unreasonable risk to health existed under the circumstances of this option. The turbidity measurements shall be made by the Nephelometric Method in accordance with the recommendations set forth in "Standard Methods for Examination of Water and Wastewater," American Public Health Association, 14th Edition, pp. 132-134; or Method 180.1.1-Nephelometric Method.

(e) The State has the authority to determine compliance or initiate enforcement action based upon analytical results or other information compiled by their sanctioned representatives and agencies.

10. Amending § 141.23(a)(3), adding (a)(4) and amending (f) (1) through (10) to read as follows:

§ 141.23 Inorganic chemical sampling and analytical requirements.

(a) * * *

(3) For non-community water systems, whether supplied by surface or ground sources, analyses for nitrate shall be completed by December 24, 1980. These analyses shall be repeated at intervals determined by the State.

(4) The State has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by their sanctioned representatives and agencies.

(f) * * *

(1) Arsenic—Method ¹ 206.2, Atomic Absorption Furnace Technique; or Method ¹ 206.3, or Method ⁴ D2972-78A, or Method ² 301.A VII, pp. 159-162, or Method ³ I-1062-78, pp. 61-63, Atomic Absorption—Gaseous Hydride; or Method ¹ 206.4, or Method ⁴ D-2972-78A, or Method ² 404-A and 404-B(4),

¹"Methods of Chemical Analysis of Water and Wastes," EPA Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268 (EPA-600/4-79-020), March 1979. Available from ORD Publications, CERL, EPA, Cincinnati, Ohio 45268. For approved analytical procedures for metals, the technique applicable to total metals must be used.

²"Standard Methods for the Examination of Water and Wastewater," 14th Edition, American Public Health Association, American Water Works Association, Water Pollution Control Federation, 1976.

³Techniques of Water—Resources Investigation of the United States Geological Survey, Chapter A-1, "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments," Book 5, 1979, Stock #024-001-03177-9. Available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

⁴Annual Book of ASTM Standards, part 31 Water, American Society for Testing and Materials, 1976, Race Street, Philadelphia, Pennsylvania 19103.

Spectrophotometric, Silver Diethyldithiocarbamate.

(2) Barium—Method ¹ 208.1, or Method ² 301-A IV, pp. 152-155, Atomic Absorption—Direct Aspiration; or Method ¹ 208.2, Atomic Absorption Furnace Technique.

(3) Cadmium—Method ¹ 213.1, or Method ⁴ 3557-78A or B, or Method ² 301-A II or III, pp. 148-152, Atomic Absorption—Direct Aspiration; or Method ¹ 213.2, Atomic Absorption Furnace Technique.

(4) Chromium—Method ¹ 218.1, or Method ⁴ D-1687-77D, or Method ² 301-A II or III, pp. 148-152, Atomic Absorption—Direct Aspiration; or Chromium—Method ¹ 218.2, Atomic Absorption Furnace Technique.

(5) Lead—Method ¹ 239.1, or Method ⁴ D-3559-78A or B, or Method ² 301-A II or III, pp. 148-152, Atomic Absorption—Direct Aspiration; or Method ¹ 239.2, Atomic Absorption Furnace Technique.

(6) Mercury—Method ¹ 245.1, or Method ⁴ D-3223-79, or Method ² 301-A VI, pp. 156-159, Manual Cold Vapor Technique; or Method ¹ 245.2, Automated Cold Vapor Technique.

(7) Nitrate—Method ¹ 352.1, or Method ⁴ D-992-71, or Method ² 419-D, pp. 427-429, Colorimetric Brucine; or Method ¹ 353.3, or Method ⁴ D-3867-79B, or Method ² 419-C, pp. 423-427, Spectrometric, Cadmium Reduction; Method ¹ 353.1, Automated Hydrazine Reduction; or Method ¹ 353.2, or Method ⁴ D-3867-79A, or Method ² 605, pp. 620-624, Automated Cadmium Reduction.

(8) Selenium—Method ¹ 270.2, Atomic Absorption Technique; or Method ¹ 270.3; or Method ³ I-1667-78, pp. 237-239, or Method ⁴ D-3859-79, or Method ² 301-A VII, pp. 159-162, Hydride Generation—Atomic Absorption Spectrophotometry.

(9) Silver—Method ¹ 272.1, or Method ² 301-A II, Atomic Absorption—Direct Aspiration; or Method ¹ 272.2, Atomic Absorption Techniques Furnace Technique.

(10) Fluoride—Electrode Method, or SPADNS Method, Method ² 414-B and C, pp. 391-394, or Method ¹ 340.1, "Colorimetric SPADNS with Bellack Distillation," or Method ¹ 340.2, "Potentiometric Ion Selective Electrode," or ASTM Method ⁴ D1179-72; or Colorimetric Method with Preliminary Distillation, Method ² 603, Automated Complexone Method (Alizarin Fluoride Blue) pp. 614-616; or Automated Electrode Method, "Fluoride in Water and Wastewater," Industrial Method #380-75WE, Technicon Industrial Systems, Tarrytown, New York 10591, February 1976, or "Fluoride in Water

and Wastewater Industrial Method #129-71W," Technicon Industrial Systems, Tarrytown, New York 10591, December 1972; or Fluoride, Total, Colorimetric, Zirconium—Eriochrome Cyanine R Method ³—I-3325-78, pp. 365-367.

11. Amending § 141.24(a)(3), (e) and (f) to read as follows:

§ 141.24 Organic chemical sampling and analytical requirements.

(a) * * *

(3) The State has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by their sanctioned representatives and agencies.

(e) Analysis made to determine compliance with § 141.12(a) shall be made in accordance with "Methods for Organochlorine Pesticides and Chlorophenoxy Acid Herbicides in Drinking Water and Raw Source Water," available from ORD Publications, CERL, EPA, Cincinnati, Ohio 45268; or "Organochlorine Pesticides in Water," 1977 Annual Book of ASTM Standards, part 31, Water, Method D3088; or Method 509-A, pp. 555-565; ² or Gas Chromatographic Methods for Analysis of Organic Substances in Water, ⁵ USGS, Book 5, Chapter A-5, pp. 24-39.

(f) Analysis made to determine compliance with § 141.12(b) shall be conducted in accordance with "Methods for Organochlorine Pesticides and Chlorophenoxy Acid Herbicides in Drinking Water and Raw Source Water," available from ORD Publications, CERL, EPA, Cincinnati, Ohio 45268; or "Chlorinated Phenoxy Acid Herbicides in Water," 1977 Annual Book of ASTM Standards, part 31, Method D3478; or Method 509-B, pp. 555-569; ² or Gas Chromatographic Methods for Analysis of Organic Substances in Water, ⁵ USGS, Book 5, Chapter A-3, pp. 24-39.

§ 141.25 [Amended]

12. Amending § 141.25 to add (e):

(e) The State has the authority to determine compliance or initiate enforcement action based upon analytical results or other information compiled by their sanctioned representatives and agencies.

13. Amending § 141.27(a) to read as follows:

§ 141.27 Alternate analytical techniques.

(a) With the written permission of the State, concurred in by the Administrator of the U.S. EPA, an alternate analytical technique may be employed. An alternate technique shall be accepted only if it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with any MCL. The use of the alternate analytical technique shall not decrease the frequency of monitoring required by this part.

14. Amending § 141.28 to read as follows:

§ 141.28 Approved laboratories.

(a) For the purpose of determining compliance with § 141.21 through § 141.27, samples may be considered only if they have been analyzed by a laboratory approved by the State except that measurements for turbidity, free chlorine residual, temperature and pH may be performed by any person acceptable to the State.

(b) Nothing in this Part shall be construed to preclude the State or any duly designated representative of the State from taking samples or from using the results from such samples to determine compliance by a supplier of water with the applicable requirements of this Part.

15. Amending § 141.31 (a) and (c) and adding paragraphs (d) and (e) to read as follows:

§ 141.31 Reporting requirements.

(a) Except where a shorter period is specified in this part, the supplier of water shall report to the State the results of any test measurement or analysis required by this part within (A) the first ten days following the month in which the result is received or (B) the first ten days following the end of the required monitoring period as stipulated by the State, whichever of these is shortest.

(d) The water supply system, within ten days of completion of each public notification required pursuant to § 141.32, shall submit to the State a representative copy of each type of notice distributed, published, posted, and/or made available to the persons served by the system and/or to the media.

(e) The water supply system shall submit to the State within the time stated in the request copies of any records required to be maintained under § 141.33 hereof or copies of any documents then in existence which the State or the Administrator is entitled to inspect pursuant to the authority of

§ 1445 of the Safe Drinking Water Act or the equivalent provisions of State law.

16. Amending § 141.32 (b)(3) and (d) to read as follows:

§ 141.32 Public notification.

* * *

(b) * * *

(3) Except that the requirements of this subsection (b) may be waived by the State if it determines that the violation has been corrected promptly after discovery, the cause of the violation has been eliminated, and there is no longer a risk to public health.

* * *

(d) If a non-community water system fails to comply with an applicable MCL established in Subpart B of this part, fails to comply with an applicable testing procedure established in Subpart C of this part, is granted a variance or an exemption from an applicable MCL, fails to comply with the requirements of any schedule prescribed pursuant to a variance or exemption, or fails to perform any monitoring requirement pursuant to section 1445(a) of the Act, the supplier of water shall give notices by continuous posting of such failure or granting of a variance or exemption to the persons served by the system as long as the failure or granting of a variance or exemption continues. The form and manner for such notices shall be prescribed by the State and shall ensure that the public using the system is adequately informed of the failure or granting of the variance or exemption.

17. Amending Subpart E to read as follows:

Subpart E—Special Monitoring Regulations for Organic Chemicals and Otherwise Unregulated Contaminants

§ 141.41 Special monitoring for sodium.

(a) Suppliers of water for community public water systems shall collect and analyze one sample per plant at the entry point of the distribution system for the determination of sodium concentration levels; samples must be collected and analyzed annually for systems utilizing surface water sources in whole or in part, and at least every three years for systems utilizing solely ground water sources. The minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer may, with the State approval, be considered one treatment plant for determining the minimum number of samples. The supplier of water may be required by the State to collect and analyze water samples for sodium more

⁵ Techniques of Water—Resources Investigation of the United States Geological Survey, Chapter A-3, "Methods for Analysis of Organic Substances in Water," Book 5, 1972, Stock #2401-1227. Available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

frequently in locations where the sodium content is variable.

(b) The supplier of water shall report to EPA and/or the State the results of the analyses for sodium within the first 10 days of the month following the month in which the sample results were received or within the first 10 days following the end of the required monitoring period as stipulated by the State, whichever of these is first. If more than annual sampling is required the supplier shall report the average sodium concentration within 10 days of the month following the month in which the analytical results of the last sample used for the annual average was received. The supplier of water shall not be required to report the results to EPA where the State has adopted this regulation and results are reported to the State. The supplier shall report the results to EPA where the State has not adopted this regulation.

(c) The supplier of water shall notify appropriate local and State public health officials of the sodium levels by written notice by direct mail within three months. A copy of each notice required to be provided by this paragraph shall be sent to EPA and/or the State within 10 days of its issuance. The supplier of water is not required to notify appropriate local and State public health officials of the sodium levels where the State provides such notices in lieu of the supplier.

(d) Analyses for sodium shall be performed by the flame photometric method in accordance with the procedures described in "Standard Methods for the Examination of Water and Wastewater," 14th Edition, pp. 250-253; or by Method 273.1, Atomic Absorption—Direct Aspiration or Method 273.2, Atomic Absorption—Graphite Furnace, in "Methods for Chemical Analysis of Water and Waste," EMSL, Cincinnati, EPA, 1979; or by Method D1428-64(a) in Annual Book of ASTM Standards, part 31, Water.

18. Adding a § 141.42 to read as follows:

§ 141.42 Special monitoring for corrosivity characteristics.

(a) Suppliers of water for community public water systems shall collect samples from a representative entry point to the water distribution system for the purpose of analysis to determine the corrosivity characteristics of the water.

(1) The supplier shall collect two samples per plant for analysis for each plant using surface water sources wholly or in part or more if required by the State; one during mid-winter and one during mid-summer. The supplier of

the water shall collect one sample per plant for analysis for each plant using ground water sources or more if required by the State. The minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer may, with the State approval, be considered one treatment plant for determining the minimum number of samples.

(2) Determination of the corrosivity characteristics of the water shall include measurement of pH, calcium hardness, alkalinity, temperature, total dissolved solids (total filterable residue), and calculation of the Langelier Index in accordance with paragraph (c) below. The determination of corrosivity characteristics shall only include one round of sampling (two samples per plant for surface water and one sample per plant for ground water sources). However, States may require more frequent monitoring as appropriate. In addition, States have the discretion to require monitoring for additional parameters which may indicate corrosivity characteristics, such as sulfates and chlorides. In certain cases, the Aggressive Index, as described in paragraph (c), can be used instead of the Langelier Index; the supplier shall request in writing to the State and the State will make this determination.

(b) The supplier of water shall report to EPA and/or the State the results of the analyses for the corrosivity characteristics within the first 10 days of the month following the month in which the sample results were received. If more frequent sampling is required by the State, the supplier can accumulate the data and shall report each value within 10 days of the month following the month in which the analytical results of the last sample was received. The supplier of water shall not be required to report the results to EPA where the State has adopted this regulation and results are reported to the State.

(c) Analyses conducted to determine the corrosivity of the water shall be made in accordance to the following methods:

(1) Langelier Index—"Standard Methods for the Examination of Water and Wastewater," 14th Edition, Method 203, pp. 61-63.

(2) Aggressive Index—"AWWA Standard for Asbestos-Cement Pipe, 4 in. through 24 in. for Water and Other Liquids," AWWA C400-77, Revision of C400-75, AWWA, Denver, Colorado.

(3) Total Filtrable Residue—"Standard Methods for the Examination of Water and Wastewater," 14th Edition, Method

208B, pp. 92-93; or "Methods for Chemical Analysis of Water and Wastes," Method 160.1.

(4) Temperature—"Standard Methods for the Examination of Water and Wastewater," 14th Edition, Method 212, pp. 125-126.

(5) Calcium hardness—EDTA Titrimetric Method "Standard Methods for the Examination of Water and Wastewater," 14th Edition, Method 309B, pp. 202-206; or "Annual Book of ASTM Standards," Method D1126-67 (8).

(6) Alkalinity—Methyl Orange and paint pH 4.5. "Standard Methods for the Examination of Water and Wastewater," 14th Edition, Method 403, pp. 278-281; or "Annual Book of ASTM Standards," Method D1067-70B; or "Methods for Chemical Analysis of Water and Wastes," Method 310.1.

(7) pH—"Standard Methods for the Examination of Water and Wastewater," 14th Edition, Method 424, pp. 460-465; or "Methods for Chemical Analysis of Water and Wastes," Method 150.1; or "Annual Book of ASTM Standards," Method D129378 A or B.

(8) Chloride—Potentiometric Method, "Standard Methods for the Examination of Water and Wastewater," 14th Edition, p. 306.

(9) Sulfate—Turbidimetric Method, "Methods for Chemical Analysis of Water and Wastes," pp. 277-278, EPA, Office of Technology Transfer, Washington, D.C. 20460, 1974, or "Standard Methods for the Examination of Water and Wastewater," 13th Edition, pp. 334-335, 14th Edition, pp. 496-498.

(d) Community water supply systems shall identify whether the following construction materials are present in their distribution system and report to the State:

- Lead from piping, solder, caulking, interior lining of distribution mains, alloys and home plumbing.
- Copper from piping and alloys, service lines, and home plumbing.
- Galvanized piping, service lines, and home plumbing.
- Ferrous piping materials such as cast iron and steel.
- Asbestos cement pipe.

In addition, States may require identification and reporting of other materials of construction present in distribution systems that may contribute contaminants to the drinking water, such as:

- Vinyl lined asbestos cement pipe.
- Coal tar lined pipes and tanks.

Appendix A—Response to Public Comments

Comments submitted to the Agency and statements presented at the public hearing in

response to the July 19, 1979, proposed regulations, are summarized below along with EPA's responses.

Community Water Supply Systems

141.11 Fluorides

Nineteen comments were received by the Agency as a result of EPA's endorsement of fluoridation practices and the addition of a statement to the NIPDWR clarifying that there is not a contradiction between the fluoride MCL and fluoridation practices. Eighteen of the comments dealt with the various aspects of established fluoride MCLs, treatment techniques to remove fluorides, monitoring and sampling for fluorides, and whether or not the MCL for fluorides should belong in the National Secondary Drinking Water Regulations (NSDWR) rather than in the NIPDWR. Only one commenter addressed EPA's action of endorsing fluoridation. This commenter felt that the Agency acted illegally since he felt that endorsement of fluoridation by EPA violates the spirit and the letter of the law.

The questions raised by the commenters regarding established MCLs, treatment techniques, and monitoring and analytical techniques were addressed when the NIPDWR and the NSDWR were promulgated and will again be considered in the development of the Revised Regulations. No changes to the existing MCL for fluoride were included in the proposal; thus, the comments were not directed toward the proposed regulations. In regard to the legality of EPA's action, a statement supporting the concept of controlled fluoridation does not violate Section 1412(b)(6) of the SDWA which states that "no primary drinking water regulation may require the addition of any substance for preventative health care purposes unrelated to contamination of drinking water." Thus, the statement of clarification and the statement that endorses fluoridation have been retained.

141.14 Microbiology

Ten commenters suggested that a change in the current coliform standard was needed. Seven objected to the monthly average MCL and expressed one or more of the following: a) States should have the option of adopting the monthly MCL requirement; b) the response time to non-compliance is too long for the "monthly average" MCL to be meaningful; c) relating health risk to the number of coliforms present is questionable; it is better to use coliform presence or absence as an indicator of bacteriological pollution; and d) good water supplies consistently show no coliforms; thus, coliform presence or absence should be used as the only indicator of bacteriological quality.

One commenter suggested that monitoring requirements should be based on source type rather than population. Another thought that fecal coliforms rather than total coliforms should be the required indicator. One commenter felt that criteria should be based on long-term monitoring surveillance of 12 to 76 months since few coliform occurrences actually indicate disease outbreaks.

These commenters' concerns were directed toward the coliform MCL rather than the specific requirements in the proposal. EPA is

currently conducting a comprehensive evaluation of the regulations on microbiological contaminants and each of these comments will be carefully considered in development of the Revised Regulations.

Several commenters stated that the "and/or" provision of the amendment was unclear and suggested clarification prior to promulgation. Many commenters interpreted the amendment as requiring a system to have an active disinfectant residual before being eligible for excluding a sample from the monthly MCL calculation. Eight commenters opposed such a "prerequisite," some expressing that systems with no chlorine residual are more likely to have misrepresentative samples than systems having such a residual. Other commenters "agreed" with having a "prerequisite" of an active disinfectant residual.

The above commenters misinterpreted the wording of the amendment since maintaining an active disinfectant residual is not a prerequisite for being eligible for the provisions of the amendment. For purposes of clarification, the wording of the amendment has been changed. The amendment applies to all systems where the State has determined and indicated in writing that no unreasonable risk to health would exist as a result of this provision. While disinfection is not a requirement, EPA strongly encourages the maintenance of an active disinfectant residual, and this should be a major factor in States' determination of no unreasonable risk to health.

Seven commenters stated that the amendment should apply to all system sizes. Most argued that contamination of one sample in large systems would make them unjustly susceptible to a specious monthly MCL violation.

The amendment was proposed in response to problems of unnecessary public notification in small systems that may result from false positive analytical results that do not reflect the actual water quality. EPA has studied the distribution of single sample and average MCL coliform violations as a function of supply system size. As the number of monthly samples increases, the sensitivity of the monthly average to any high value decreases. Thus, EPA has determined that the spurious monthly MCL violations are minor in systems serving over 9,400. The amendment has, therefore, not been changed to include large systems.

Three commenters felt that additional latitude should be provided for small systems and the following items were suggested: (a) allowing the MCL to be exceeded more than once before requiring public notification; (b) allowing one of the negative check samples to be included in the monthly average calculation; (c) allowing use of the provisions for excluding one sample from the monthly average more than once per compliance period; (d) not requiring reporting to the State until either of the two check samples is positive; (e) making the amendment applicable for every compliance period; and (f) allowing small systems to be exempt altogether from public notification.

Each of these items has been considered in determination of the final provisions of the amendment. However, no changes were

made in the amendment; EPA encourages stringent quality control in sampling and analysis and any lessening of the conditions set in this amendment could compromise the safety of the water served by small water systems.

Three commenters stated that "no unreasonable risk to health" should be defined so that the primacy agency can evaluate if a supplier is eligible for the amendment.

The purpose of this clause is to assure that in rendering that judgment the State conducts a comprehensive evaluation of each water system in order to assess the potential for contamination at each site. Strict definition of the criteria would not be possible since the State must evaluate all pertinent factors on a case-by-case basis. States are encouraged to initiate evaluations in a systematic manner prior to receiving a petition from the public water system, such that careful consideration, including a sanitary survey and an evaluation of the history of the water quality (e.g., MCL or monitoring violations), can be given to all appropriate factors. It is not expected that systems maintaining a disinfection residual in the distribution system would receive an automatic approval for application of this provision; however, this should be a prime factor in the determination of "no unreasonable risk to health" since the evaluation should be conducted on a case-by-case basis of all relevant factors.

Two commenters felt that the proposed amendment was too lenient since small systems tend to have greater disease incidence than larger ones. Their suggestions included increasing the required monitoring frequency to at least four samples per month, and requiring disinfection for all systems that take less than ten samples per month.

EPA will consider those suggestions as it prepares the Revised Primary Drinking Water Regulation. The current amendments are intended for the interim until Revised Regulations are formulated. EPA strongly encourages disinfection and maintenance of an active disinfectant residual to prevent contamination in the distribution system and to provide a margin of safety. In regard to increased monitoring or requiring disinfection, many small systems already practice disinfection but experience problems in a higher incidence of coliform violations than in large systems partly because of inconsistent operation or distribution system problems. EPA believes that health risks for such systems could be minimized by better operation and maintenance and compliance with existing regulations. The amendment should reduce average MCL violations caused by spurious sample results for small systems without compromising the safety of the water to the public. It is again emphasized that these are interim regulations and these commenters' concerns will be carefully considered in development of the Revised Regulations.

One commenter stated that the concept of 24-hour follow-up "check samples" is not feasible because of unavailable mail or laboratory service on the weekend.

Many laboratories provide service through the weekend, and samples can be sent

expeditiously via private postal bus service. Wherever possible, utilities not having easy access to weekend coliform analyses should attempt to monitor in the early part of the week, allowing for the contingency of follow-up "check samples" prior to the weekend.

One commenter felt that the amendment does not indicate what action should be taken if one or both check samples are positive.

The amendment states that each of the check samples must be negative in order to exclude the original positive sample from the compliance requirements. This indicates that if either of the check samples is positive the original positive sample must be used for computing the single sample and monthly average value.

One commenter interpreted the amendment to result in additional samples being taken; under the existing regulation a single sample exceeding four coliforms per 100 ml can be discounted if it is followed by two successive negative samples; the amendment would require two negative check samples and another sample to replace the original, a total of three samples.

The commenter is correct with respect to the single sample MCL. However, under the existing regulations, two successive negative check samples do not allow the original positive sample to be excluded from the average monthly MCL. If the minimum number of samples required per month is four or less, at least one additional sample (in addition to the two negative check samples) would need to be taken for the system to meet compliance with the average MCL. With the amendment, only one additional sample is needed. EPA encourages proper sample collection and handling practices; additional sampling should not be considered a burden since the drinking water was either actually contaminated or the sample was improperly collected or handled.

One commenter stated that the amendment is not clear as to whether the water utilities must petition to the State each time they seek use of this amendment or whether they can forego such petitions until after they have already excluded one positive sample from the monthly MCL calculation once within two successive compliance periods.

In order to be eligible for excluding one positive sample from the average MCL calculation, the utility must petition the State within 24 hours following two successive negative check samples. The utility is only eligible for one such exclusion within two successive compliance periods.

One commenter felt that non-compliance of both single sample and average MCLs within one month should be treated as a single violation with respect to public notification.

EPA agrees in the case of a single sample leading to non-compliance of both MCL standards. The amendment has been changed to include this consideration.

One commenter stated that "active disinfectant residual" needed to be defined.

This phrase is commonly understood to mean the presence of an anti-microbial oxidizing agent such as a free chlorine, combined available chlorine ($\text{Cl}_2 + \text{NH}_3$), or chlorite residual. Since the State regulates which oxidants are permissible, the term has

not been specifically defined in order to provide States latitude in making this determination.

In the preamble of the proposed amendments, it was stated that the laboratory director could discard samples known to be defective due to poor sampling or transit techniques. Three commenters felt that a laboratory director would not be qualified for exercising such judgment.

The laboratory director can in many cases, on the basis of the condition of the sample (e.g. lid off or sediment on top), excessive transit time (greater than 48 hours for coliforms), or inadequate transit conditions (e.g. insufficient refrigeration) decide if the sample would not be valid. The laboratory director should reject such samples from analysis to prevent the generation of misrepresentative data. The laboratory cannot reject a sample that has already been analyzed unless he is aware of an error in the analyses that was conducted.

The preamble of the proposal included a discussion on sample storage time requirements. Three commenters suggested this was inappropriate since no change in these requirements was being made. Two commenters were opposed to EPA requiring samples having more than a 48-hour transit time to be precluded from analysis. They suggested that the 48-hour cut-off point be used as guidance but allowing exceptions under certain conditions. One commenter felt that the 48-hour cut-off point lacked supporting data and could be unjust to the supplier because of slow postal service.

In cases of expected long transit time with the postal service, EPA suggests using the mail service provided by private bus companies. The storage time studies, referred to in the proposal, are still not complete. Until then, EPA expects utilities to analyze samples as soon as possible following collection and certainly within 30 hours of collection. The 14th edition of "Standard Methods for Examination of Water and Wastewater" recommends that samples be processed within one hour of collection. If transit time extends beyond 6 hours, the sample should be refrigerated and consideration given to analysis by a local laboratory facility. "Standard Methods for Examination of Water and Wastewater" further recommends that since drinking water samples often have to be transported by mail, the total elapsed time between collection and analysis should not exceed 30 hours. Under extraordinary circumstances a 48 hour transit time will be permitted, but State programs should be developed to keep transit time to a minimum. Samples awaiting analysis after 48 hours should be rejected.

One commenter indicated that the proposal had incorrectly paraphrased section 906B in the 14th edition of "Standard Methods for the Examination of Water and Wastewater," in saying that "if transit time extends beyond 6 hours, the sample should be refrigerated and consideration given to analysis by a local laboratory." The commenter indicated that the text suggests this for stream samples while EPA implies it pertains to drinking water analysis.

This was not the intent of EPA. The preamble also included a succeeding passage

from Section 906B which specifically recommended "that since drinking water samples have to be transported by mail, the total elapsed time between collection and analysis should not exceed 30 hours."

141.21 Microbiological Contaminant Sampling and Analytical Requirements

Three comments were received concerning the proposed amendment; all fully supported the amendment and thus no changes were made.

141.23 Compliance Monitoring and Record Maintenance

Five comments were received concerning the proposed amendments on compliance monitoring and record maintenance; four fully supported the amendments. One of these commenters suggested that the primacy agency should inform the supplier in writing of the intent to conduct sampling and work cooperatively in selecting representative sampling locations in the distribution system.

Notification of the public water system by the State of the intent to sample and determination of representative sampling locations in a cooperative operation is considered normal operating procedures for most States, and is in their best interests. However, in certain cases, such as compliance audits or enforcement cases, this might be inappropriate. No change has been made in the amendment.

141.27 Alternate Analytical Techniques

Eleven comments were received concerning the alternate analytical techniques specified in the proposal. Eight commenters supported the amendments and three expressed no value judgment but made specific comments.

Two commenters felt that the alternate analytical techniques should be listed in Sections 141.22, 141.23, and 141.24 for simplicity.

As suggested, the alternate analytical techniques are listed in Sections 141.22, 141.23, and 141.24.

One commenter remarked that EPA is very slow to accept new methods and to inform laboratories and chemists when such new methods are acceptable.

In many cases, considerable time is needed to evaluate the acceptability of an alternate method. Often incomplete or unclear data are provided in comparing alternate methods with approved methods and frequently several iterations in data review and requests for additional information are necessary between EPA and the laboratory before evaluation can begin. The package must be reviewed by the EPA Environmental Monitoring and Support Laboratory (EMSL) (Cincinnati) for analytical approval and by EPA, Office of Drinking Water (Washington, D.C.) for consistency with regulatory concerns.

One commenter suggested that EPA publish in the Federal Register new alternate techniques on a regular time basis and that the methods in the NIPDWR should be updated.

EPA agrees that new alternate approved methods will periodically be published in the Federal Register. Also, methods in the

NIPDWR have been updated and are included in the regulations.

Two commenters stated that the degree of accuracy of alternate methods should be equivalent to those already prescribed before being considered as alternate analytical techniques.

This is the intent of the provision for alternate analytical techniques. An alternate analytical technique shall only be accepted for compliance purposes if it is equivalent to the prescribed test in accuracy and precision, and has EPA and State approval.

One commenter cited their laboratory as being unable to get reproducible results on the Flameless A.A. and Graphite Furnace Technique for arsenic and selenium analysis, and suggested that further study is needed before these methods are "approved."

EMSL has received substantial data from many laboratories indicating equivalent precision and accuracy to the prescribed techniques for these parameters. These techniques have thus been approved for compliance monitoring for arsenic and selenium.

141.28 Approved Laboratories

The two comments received pertaining to use of approved laboratories expressed full agreement.

141.30 Corrosion Control

Sixty-eight comments were received by EPA regarding the amendment involving corrosion control. The comments dealt with a wide range of issues, involving the legal, health and procedural aspects of the amendment. Twenty-three of the commenters concurred with the Agency's overall approach to control corrosion, but twenty-one of these expressed reservations about some aspect of the amendment. Thirty of the commenters objected to the amendment on legal and procedural grounds. The remainder of the fifteen commenters did not express support or opposition to the amendment but provided recommendations.

Thirteen of the commenters objected to the proposed amendment because it did not contain specific requirements. The commenters questioned the Administrator's legal authority to promulgate this amendment, arguing that it is not enforceable since specific requirements for a maximum contaminant level or requirements for treatment technique were not specified. A number of these commenters objected because the Agency did not provide an adequate definition for corrosivity. The commenters felt that the use of the various indices as proposed by the Agency does not provide an acceptable criteria for corrosivity. However, several commenters did state that the indices could be used as indicators of corrosive characteristics in some locations. In addition, the commenters felt that the Agency should be more specific in regard to providing guidelines for monitoring and survey techniques to identify corrosive waters.

Since corrosion is a complex phenomenon and the presence and occurrence of contaminants in different water supply systems is unique, the Agency felt that States and utilities should be given as much latitude as possible to identify and solve the problem

on a case-by-case basis. However, the Agency also feels that specific requirements are desirable in setting forth most regulatory programs. Therefore, because of the concerns of public water systems and State agencies, the regulations have been revised. The Agency continues to emphasize that corrosion is a serious concern and has decided to confront the problem as follows:

EPA has established monitoring and reporting requirements in these regulations for corrosivity related characteristics by community water systems, including measurements of pH, calcium hardness, alkalinity, temperature, total dissolved solids, and the Langelier Index (or the Aggressive Index in certain cases). In addition, States may require monitoring for other parameters that may affect the corrosivity of the drinking water such as sulfates and chlorides. Furthermore, it is required that community water supply systems determine and report to the States the presence of materials of construction of their distribution system which may be potential sources of contaminants such as lead, cadmium, copper, iron, zinc and asbestos fibers. It is expected that the information gained as a result of this amendment will increase the awareness of the water supplier to corrosion related problems in his system and provide a basis for judgment by the State to determine whether the water system is vulnerable to contamination by corrosion products. For systems distributing water that has corrosive characteristics, these systems are expected to implement corrosion control measures, with the direction and guidance of the State. In addition, the Agency will propose in a separate rulemaking an amendment which will require that systems which are vulnerable to contamination by corrosion by-products to monitor for corrosion-related contaminants at an increased frequency and implement appropriate measures to remove and control corrosion-related contaminants where needed.

Four of the commenters expressed concerns about the supplier's legal authority to enter homes to conduct surveys, sampling and monitoring. Because of the lack of such authority, the commenters argued that compliance with the regulation would be difficult or impossible.

The commenters' concerns relative to obtaining samples and complying with the regulations has not been a problem to date in compliance with other requirements of the NIPDWR. It is expected that suppliers will be able to continue obtaining the consent of homeowners for survey and sampling purposes. If consent is not granted, suppliers should look toward other homes or possibly public buildings.

Seven of the commenters expressed concerns and questioned the legality of their responsibility regarding the water quality at the consumer's tap. The commenters reasoned that they should not be responsible for the deterioration of water quality beyond the distribution system not under the purveyor's jurisdiction since the changes made to the water quality by the consumer are not under the supplier's control. The commenters were concerned about legal recourse for not meeting the MCL due to

corrosion from appurtenances which are under the control of the user.

The definition of "maximum contaminant levels" in Section 141.2(c) of the NIPDWR specifically excludes "contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality." Thus, public water systems must take into consideration the types of materials used in service connections and in home plumbing. EPA believes that the water supplier is responsible for deterioration of water quality for problems within the supplier's control; adequate protection is provided in the NIPDWR so that legal action against the water supplier would be limited to corrosion problems only within the supplier's control.

Eight of the commenters recommended that regulations for corrosion control are more appropriately addressed in the NSDWR. They felt that corrosion is related to aesthetic and economic phenomenon rather than to health concerns.

Aesthetic effects associated with corrosion such as taste and discoloration resulting from corrosion by-products, such as copper, zinc and iron, are appropriately dealt with in the NSDWR. However, contaminants at the consumer's tap resulting from the corrosive action of waters could also include lead and cadmium which are health-related contaminants. Therefore, due to the presence of health-related contaminants resulting from the corrosive action of water on materials in distribution systems, the inclusion of corrosion control in the NIPDWR is also appropriate.

Eighteen commenters addressed EPA's proposal to establish an MCL or MCLs for corrosion using one or more corrosivity indices including the Langelier, Ryznar and the Aggressive indices. Three commenters supported EPA's proposal to establish MCLs for corrosivity indices; one commenter noted that this approach would be beneficial in areas having soft corrosive waters and another of these commenters suggested that an MCL be established for all of the three indices proposed by EPA. Three commenters indicated that use of the indices to determine corrosivity would be acceptable.

Fifteen of the commenters opposed MCLs based upon the indices; they argued that the suggested indices are not universally applicable. These commenters felt that the indices cannot define an MCL since they do not define specific contaminants but rather a tendency of water quality. In addition, the commenters felt that establishment of MCLs would limit flexibility for utilities to select a treatment for corrosion control. The commenters also expressed concern about the economic implications associated with the reduced options available for the utilities to select a treatment approach since they felt that treatment techniques to stabilize the water for corrosion control may be more expensive than utilizing inhibitors for corrosion control.

The Agency feels that evaluation of each of the parameters used in calculating the indices as well as the indices themselves is a viable approach to identifying corrosion in drinking water; in many instances as pointed out in

the preamble of the proposal, the indices may not be applicable to certain water types. EPA agrees with the commenters that in some instances alternate treatment methods such as the addition of phosphates or silicates, or the increase of the alkalinity of the water, may be just as effective and more economical than utilizing the principle of calcium carbonate saturation for corrosion control. In acknowledging this, the Agency indicated in the proposal that "allowances would be made for methods achieving non-corrosive waters not meeting a MCL based on the calcium carbonate stability of the water." On the basis of the comments received and further study, the Agency has decided that establishment of MCLs (which was presented as an alternate approach) based on the proposed corrosivity indices is not feasible at the present time. However, the indices and their supporting measurements are acceptable as indicators of corrosivity characteristics, and thus, as noted previously, the regulations were changed to require monitoring and reporting for the pH, alkalinity, hardness, temperature, total dissolved solids and Langelier Index (or in certain cases the Aggressive Index).

Nineteen of the commenters recommended that corrosion control be implemented through the adherence to the MCLs established in the NIPDWR. Among these commenters, some felt that corrosiveness of the water could be determined by comparing the specific contaminant levels in the water entering the distribution system to those found in the water leaving the distribution system.

Comparison of contaminant levels in the water entering and at specific locations in the distribution system has successfully demonstrated the corrosive action of water. In addition such comparison of specific contaminant levels is a useful tool to determine the effectiveness of treatment techniques aimed at reducing corrosion. This approach will be considered in the regulations to be proposed which will require increased monitoring for systems with corrosive waters and vulnerable materials of construction in the distribution system.

Other commenters noted that adherence to the MCLs established in the NIPDWR would be sufficient to define corrosion products, and therefore, there is no need for the Agency to establish additional regulations.

The regulations promulgated herein are appropriate as they will provide an indication of which systems are distributing corrosive water. However, as noted in the preamble, the revised strategy for corrosion control will be partly through adherence to existing MCLs. However, the existing monitoring requirements may not be sufficient in all cases to determine the presence of corrosion-related contaminants. Because of the many kinds of piping materials used in the distribution system, careful selection of representative monitoring points along with a sufficient number of samples, are essential to assess the extent of corrosion by-products. For this reason, the Agency will propose in the near future an amendment which would specify increased monitoring frequencies geared to the potential presence of corrosion-related contaminants that would exceed an MCL.

Ten commenters argued that reference to asbestos and organic materials should be deleted from the regulations. The commenters raising this issue felt that making reference and including asbestos and organic compounds is improper since there are no established MCLs for these contaminants. In addition, the commenters felt that EPA did not provide specific guidance for the monitoring of these contaminants.

In referring to asbestos and organic contaminants in the preamble and the Statement of Basis and Purpose, the Agency's intent was to point out other adverse effects associated with the distribution of corrosive waters. For example, deterioration of asbestos cement pipe in contact with corrosive waters will result in economic losses to the purveyor and high levels of asbestos fibers in the drinking water. The potential health effects associated with the presence of asbestos fibers originating from distribution systems are under study. Prior to the completion of the studies, the Agency encourages utilities to take appropriate corrosion control and other measures to minimize levels of asbestos fibers in the drinking water.

Four commenters suggested that corrosion control should be achieved by the installation of proper materials into the distribution system rather than by regulating the quality of the water.

The suggestion by the commenters to achieve corrosion control by the proper selection and use of materials may be helpful for reducing potential corrosion when dealing with new systems or when replacing the components of old ones. However, this approach would not alleviate or reduce problems in existing systems where it may not be economical or feasible to replace components. In addition, where waters are corrosive, selection of proper materials without the appropriate treatment of the water may not be sufficient to solve the problem. Sound judgment in selecting and installing proper materials into the distribution system is considered good engineering practice and may alleviate some of the problems associated with corrosion in newly constructed systems or in old systems where pipes are being replaced. The Agency is encouraging the practice of replacing lead pipes conveying drinking water in existing systems. In addition, EPA is actively pursuing the elimination of lead from plumbing code specifications as an acceptable material for the transportation of drinking water.

Nine commenters felt that no regulations should be established for corrosion control since corrosion is dependent on other variables in addition to water quality. The commenters recommended that instead of regulations the Agency should establish guidelines for corrosion control.

Although corrosion is indeed a complex phenomenon, experience indicates that the problem can be solved by application of appropriate treatment techniques and the monitoring of contaminant levels. However, available information shows that control of corrosion while a serious concern is not a high priority area at most public water systems. Because of this and the health risks associated with contaminants resulting from

corrosive waters where MCLs are being exceeded, there is a need for regulatory action. It is felt that these regulations will provide States with data that will indicate which systems should implement corrosion control measures.

Nine commenters felt that the treatment techniques suggested by the Agency for corrosion control are in conflict with the SDWR and the NIPDWR. The commenters raising this issue pointed out that treatment techniques for corrosion control such as adjustment of pH and utilizing compounds containing zinc and sodium are in conflict with the Agency's attempt to minimize the presence of these substances and to maintain pH levels within values established by the NSDWR.

Utilities should use discretion when applying compounds containing sodium. Use of corrosion control chemicals containing sodium should be limited to instances where the sodium levels are low in the raw water. Use of lime for corrosion control can often alleviate the possible conflicts with established MCLs. Regarding adjustment of pH, control of corrosion can be accomplished by maintaining pH levels within the range established by the NSDWR, provided appropriate adjustments of hardness and alkalinity are made. However, it is recognized that some water systems may necessarily operate at pH ranges higher than stated in the SDWR. The SDWR do not preclude States from allowing higher pH levels where local conditions make such higher levels appropriate.

Seventeen comments dealt with the implementation of the proposed regulations for corrosion control. Five of these commenters felt that the States may not be able to implement the proposed amendment due to the lack of resources. The commenters felt that utilities, especially small ones, would encounter problems of installing corrosion control treatment measures. Twelve commenters felt that the 18 month period allotted would not be sufficient to implement the regulation. Recommendations for increasing the time between promulgation to compliance ranged from 2 to 5 years.

The regulations have been revised to reduce the burden on the State and the water utilities. The final regulations require identification of the presence or absence of specific materials in distribution systems and monitoring and reporting for pH, alkalinity, hardness, temperature, total dissolved solids, and the Langelier Index or the Aggressive Index. Monitoring for these parameters are not sophisticated analyses and reporting of the data can be done along with other parameters required in the NIPDWR. Thus, the burden upon utilities and States is not considered significant. The effective date of the regulations is set at 18 months from promulgation and the corrosion requirements must be completed within 12 months following the effective date.

Nine comments were received regarding the health effect implications cited in the proposal in support of the establishment of regulations for corrosion control. Three of the commenters did not accept the health basis for the proposed corrosion control regulations. One of these felt that corrosion is

an aesthetic and economic problem and not related to health, noting that average exposures to heavy metals cannot be greater than allowed by the NIPDWR. Another of these commenters felt that there is no adverse health effect attributable to corrosive waters and that the effects of the products of corrosion are already addressed in the NIPDWR.

Lead and cadmium which often occur in plumbing materials have been found to leach into soft corrosive drinking water. The adverse health effects associated with these materials have been proven, and are discussed in the NIPDWR. However, monitoring for these compounds at the frequency set in the NIPDWR may not always determine levels of these compounds that are representative of drinking water qualities throughout the distribution system due to the wide distribution of various piping materials. The new proposal will focus upon increased monitoring for corrosion by-products, such as lead and cadmium, and implementation of corrosion control through compliance with established MCLs.

Several commenters noted that EPA's claim regarding the relationships between corrosivity and cardiovascular disease (CVD) and hypertension are speculative and without evidence. These commenters felt that the relationships between soft water, corrosive water, the products of corrosion, a "water factor" and cardiovascular disease rates are very unclear, and not adequately supported by current data to support the corrosion control regulations. One of these commenters did not feel that a link existed between CVD and the presence of metals such as cadmium, copper, lead and zinc in drinking water.

On the other hand, one commenter, in support of the proposed corrosion control regulation, stated that the cardiovascular disease rate could be decreased 6.3/million for each one part per million (ppm) of hardness increased. The commenter claimed that health benefits would exceed treatment costs by 300 times since 13,825 lives could be saved per year if hardness of drinking water were maintained above 60 ppm.

Results of epidemiological studies indicate that there may be an increased incidence of cardiovascular disease associated with the consumption of soft, corrosive waters (see Statement of Basis and Purpose). However, the Agency agrees that this issue needs more study. For this reason, the Agency is closely following and funding further research and special projects in this area to resolve this question.

One commenter urged discussion of beneficial, as well as adverse health effects in all regulations.

EPA agrees that the beneficial effects of some drinking water constituents should be considered when they exist. EPA agrees that consideration should be given to presenting as complete a picture of the effects of drinking water constituents as is possible in light of present knowledge. EPA is expending considerable efforts through research and special studies attempting to assess beneficial aspects of constituents in drinking water. A more detailed discussion of the role of corrosive waters affecting health is provided in the Statement of Basis and

Purpose to these regulations. In addition, in response to a request from the Office of Drinking Water, EPA, a report has been prepared by the NAS entitled, "The Contribution of Drinking Water to Mineral Nutrition in Humans," which provides information on the beneficial aspects of chemicals in water.

Three commenters felt that the economic analyses referenced and developed by EPA to support the amendment are inadequate and overstated. The commenters stated that the benefit-cost ratios cited by EPA are not in agreement and subject to debate. On the other hand, one commenter agreed with the Agency approach regarding the economic impact of corrosion and indicated that EPA's benefit-cost ratios were conservative.

Although there may be some disagreements concerning the cost estimates cited by EPA, there is no question about the fact that the economic benefits realized in reducing maintenance, energy requirements and reduction of water losses are several times over the costs associated with corrosion control. This has been demonstrated by several utilities who have initiated and successfully practice corrosion control. Since conditions are not universal in water supply systems distributing corrosive waters, it is expected that there would be a range of costs associated with the implementation of corrosion control measures, where needed. The economic analysis has been revised to reflect the changes in the regulations; costs for monitoring for corrosivity are included.

141.31 Reporting Requirements

Three commenters were opposed to changing the required reporting time. They felt that since the NIPDWR are based on long-term exposure, and that the problems of immediate health risk are already considered in the existing regulations (Section 141.31(b) states that non-compliance with any MCL must be reported within 48 hours), there was no need to shorten the required reporting time. Three other commenters suggested that the reporting requirement should be within the first 10 days of the month following the month in which sample results are received by the supplier (one commenter suggested 15 rather than 10 days). Since MCL violations are to be reported within 48 hours, the commenters felt that a longer reporting time would not impact upon the potential health risk to consumers; in addition, the commenters stated that a longer reporting time would provide flexibility to equalize their workloads.

EPA recognizes that the public is normally protected from health risks by the requirement that supplier must notify the primacy agency within 48 hours when an MCL is exceeded. The primacy agency, however, cannot know if the supplier fails to comply with this requirement until it receives the data. Thus, requirements for a shorter reporting time within reasonable limits are considered appropriate in order that systems that exceed standards be identified as early as possible. The amendment will almost halve the reporting times for infrequently monitored parameters without significant inconvenience to the supplier. In addition, the amendment also provides for reporting of all

parameters at the same time and thereby will reduce clerical work in meeting reporting requirements.

Two commenters stated that the supplier should only be required to maintain and make available results upon request or which violate MCL regulations. They felt that the reporting of all analyses is unnecessary and costly.

Requiring reporting of data assures that required monitoring frequencies and compliance with MCLs are met. It also helps establish a data bank from which water quality trends can be studied for the purpose of re-evaluating existing regulations.

One commenter questioned the semantics of the amendment. He felt that "results of any test, measurement, or analysis. * * *" should read "copies of results of any test, measurement, or analysis. * * *"

"Results" symbolize a categorization of data and thus "copies of results" are no different than "results." The wording does not require the original data sheet to be sent to the primacy agency but rather the data itself. The language has thus not been changed.

141.32(b) Public Notification

Two commenters incorrectly thought that the amendment would allow community systems in violation of an MCL not to notify authorities if the problem was likely to be corrected.

A public water system is required to notify the primacy agency of any violation, whether it is corrected immediately or not. This is clearly stated in § 141.31(b). The primacy agency can determine if public notification has been implemented in cases of non-compliance, and if not, it is expected that the primacy agency would provide specific directions to the water system.

One commenter stated that the State rather than EPA should have the authority and responsibility to require consumer notification where it feels it is appropriate; this would reduce the printing and mailing of notices concerning minor water quality violations. Another commenter felt that the amendment decreases State flexibility in administering their program without any apparent benefit.

EPA believes that the appropriate conditions for public notification are as defined in Section 141.32. The amendment gives the State discretion to waive the notification requirement if the violation has been corrected and there is no longer a risk to public health.

One commenter stated that State agencies do not have the resources to interpret whether suppliers should be granted a waiver. Therefore, waivers might be unjustifiably denied.

These provisions allow State agencies to make a determination based upon the available information and thus provide latitude to the States in implementing the public notification requirements of the NIPDWR. It is not expected that the evaluation to determine the appropriateness of a waiver will be very time-consuming. Thus, because of the desirability to provide States as much latitude as feasible, the amendment was not changed.

One commenter expressed the need for more data in determining the significance of coliforms with respect to disease incidence. The commenter suggested that media notification of coliform MCLs may encourage the reporting of waterborne diseases; thus, providing more data for evaluating the correlation between disease incidence and coliform counts. If the public is aware of potential contamination in their drinking water, they might be inclined to report their sickness to the public health authorities thinking it could be water related. Such reportage might never occur if the public were not notified. States should thus take these considerations into account before waiving media notification.

In the proposed amendment, one of the conditions of the waiver was the " * * the violation has not posed a risk to public health." The question of whether a violation has posed a risk to public health would often be difficult to assess and for cases where this would be indeterminable, the commenter raises a point for not waiving notification requirements. However, the wording of the final amendment has been changed to " * * the violation no longer poses a risk to public health;" this will make it easier for the primacy agency to judge when to grant a public notification waiver. The main criteria used should be whether the system is meeting compliance with the previously violated MCL. With the new wording of the amendment, the commenter's consideration for States not waiving notification requirements would no longer apply.

One commenter stated that community systems should be required to give repeat notices until the failure to comply with MCLs is remedied.

As required in the NIPDWR, renewed notification is required every three months if the utility does not remedy the situation.

One commenter thought that the first notice to the public should be given within 24 hours of the time the supplier first learns of non-compliance with the regulation.

In the case of an imminent health risk, the State, which is required to be informed within 48 hours of any violation, has the option to require immediate and extensive public notification. In cases where non-compliance does not pose an immediate health risk, the utility can avoid public notification by quickly solving the problem, contingent upon State approval.

141.41 Special Monitoring for Sodium

Twenty-nine commenters opposed the direct public notification requirement for sodium levels. Most of these favored restricting notification to public health agencies and/or physicians allowing the public to be informed through these resources upon their own request. Some thought that EPA or the State rather than the supplier should provide such notification. Eight commenters thought notification to the State/EPA and/or physicians should only be required if the sodium levels were high (i.e., 20 mg/l to 270 mg/l). Their rationale presented included:

(a) Since sodium levels only affect a small population there is no need to inform everybody. Much of the public might be

confused and/or falsely alarmed over reported sodium concentrations on water bills. If water bills were used to indicate sodium levels, many thought a clarifying statement would be necessary. Many commenters alleged that not enough space would be available for additional clarifying material and that it would not necessarily be cost-effective.

(b) The public is not publicly notified about the sodium content in foods which is much more significant.

(c) In many apartments and condominiums, people are not billed for water independently. Considerable uncertainty would arise concerning the means and format of notification to such people by their landlords.

Nine commenters agreed with the proposed direct public notification requirement except that it should only pertain if sodium concentrations were "high" (20 mg/l to 250 mg/l). They thought it would be meaningless and costly to notify the public if sodium levels were low.

While EPA feels that public awareness of the sodium levels in the drinking water is desirable, EPA has carefully evaluated the commenters' concerns and has determined that the most appropriate action to take would be reporting of sodium levels to the EPA and/or the State and to appropriate local and State public health officials; if the State assumed this latter responsibility the supplier would be relieved of this requirement. Physicians could in turn be informed through communications with the public health officials. The public can be informed either through their physicians or by contacting the public health officials, the State, or the water system. The results can also be disseminated by local news media.

Five commenters suggested that the State or EPA rather than the supplier should notify the public and appropriate health officials because of the burden placed upon the supplier.

The deletion of the direct public notification requirement will greatly reduce the requirements imposed upon the supplier. The supplier will now only be required to report to EPA and/or the State and to notify the local and State public health officials of its sodium content in water. In many cases the State will assume this latter responsibility.

Eight commenters stated that the required reporting time for sending sodium results to EPA and/or the State of ten days following receipt of results was too short. Their rationale included (a) inconsistency with the allowed reporting time of three months to public health officials; (b) sodium is not an acute risk and therefore greater time should be allowed for its reportage; and (c) paperwork could be minimized if sodium could be reported with other parameters.

EPA agrees with the commenters and thus has changed the reporting requirements to make sodium consistent with that required for other parameters included in the NIPDWR.

Six commenters thought that the required monitoring frequency was insufficient to determine representative sodium concentrations at many locations; several indicated systems using multiple sources as

an example. One commenter suggested basing monitoring frequency on geographical location (e.g. coastal sources having higher requirements than inland sources). Three commenters suggested that the monitoring frequency should be determined by the State or EPA. One commenter suggested that once a site indicated a constant concentration, the monitoring frequency should be lowered.

The minimum monitoring frequency for sodium is consistent with that required for other inorganic contaminants. The regulations provide that those systems expected to have fluctuations in sodium levels can be assigned higher monitoring frequencies by the States or EPA. In addition, EPA feels that since the minimum sampling requirements are not a burden and will provide useful information, and thus, reduced frequencies are not necessary.

Nine commenters were opposed to establishing an MCL for sodium in the Revised Primary Drinking Water Regulations. Most of these alleged that there is currently no cost-effective technology for reducing sodium levels and that many water supplies would thus not be able to comply with such a regulation. Many thought it would be illogical for the consumer to pay for sodium removal in water when basic foods contribute much more significant amounts. Commenters contended that a more cost-effective solution could be achieved if affected people bought bottled water. In addition, several commenters argued that an MCL should not be set because available information is insufficient to implicate health risks with the sodium levels in drinking water. In addition, many commenters thought that an MCL would conflict with corrosion control practices since sodium compounds are often the best treatment for reducing corrosivity. Eight commenters suggested that if an MCL were established it should be higher than EPA's stated goal of 20 mg/l (ranging from 100 to 250 mg/l).

In the proposal, EPA stated that it is studying the feasibility of establishing an MCL rather than stating the intent to establish an MCL, as several commenters interpreted. EPA recognizes that foods contribute most of the sodium in people's diets. However, sodium intake from food can only be restricted to a feasible limit. Where water supplies contain more than 20 mg/l, dietary sodium restriction to less than 500 mg/day, which is sometimes prescribed, is difficult to achieve and maintain. Also, many bottled waters do not list their sodium concentrations. EPA will continue to study the feasibility of setting an MCL for sodium. Treatment techniques such as reverse osmosis, electrodialysis or distillation could remove sodium but the costs are relatively high. Research is being conducted to determine more feasible treatment methods and the possible risks of sodium in drinking water is still being evaluated. If such treatments become available, options other than imposing an MCL would also be considered. EPA's position on health risks and potential conflict with corrosion control is discussed below in responses to other comments.

Eight commenters felt that EPA's stated goal of 20 mg/l for public water systems was

unrealistically low and suggested changing it from 50 to 250 mg/l. Their reasons included a lack of available treatment technology, conflict with the corrosion amendment, and questioning the health risks of sodium levels at 20 mg/l. One commenter felt that the NAS report stated that 100 mg/l should be the generally acceptable upper limit and suggested that the goal be changed to 100 mg/l.

The goal was set at 20 mg/l so that drinking water which meets this goal would not present a sodium-related hazard to those segments of the population thought to be at high risk. These are not only those persons on low sodium diets. Included are infants, women during pregnancy, persons with undiagnosed or untreated hypertension, persons with kidney disease or congestive heart disease and persons in whom an unknown source of excessive sodium could present considerable health risk. With respect to the NAS report (1977), it was stated that, "in many diets allowance is made for water to contain 100 mg/liter of sodium (NAS, 1977, p. 436)." Also, with a desired total sodium intake of 2000 mg/day, the contribution from water (assuming two liters intake per day) containing not more than 100 mg/liter would be 10 percent or less of the daily intake. The desired total intake limit of 2,000 mg/day is considered to be beneficial to at least 40 percent of the total population.

EPA's intent in stating the goal of 20 mg/l was to provide a reference for water utility operators for their consideration when evaluating alternative sources or treatment technologies. For example, in certain cases, it may be possible to select lime addition in lieu of addition of soda ash but the point is that operators should be aware of considerations for addition of less desirable compounds. While sodium levels in alternate sources or resulting from various treatment technologies should be considered, protection of source waters is also desirable. EPA's previously stated goal of 20 mg/l has been rewarded to clarify the above considerations.

Eight commenters thought that the State rather than the water supplier should report sodium levels to EPA, indicating that reporting requirements should be consistent with those for other parameters. Three commenters suggested that the primary agency, rather than EPA, should be notified since it has full authority for implementing the regulation.

The sodium monitoring and reporting requirements have been included as part of the special monitoring requirements allowed for unregulated contaminants as authorized by the Safe Drinking Water Act (Section 1414(c) and 1445). States are not required to adopt the requirements to maintain their primary enforcement responsibility. If the State adopts the regulation, the supplier will report the results to the State rather than to EPA. If the State does not adopt the amendment, the supplier is required to send the results to EPA. States are being encouraged to adopt the regulations in order to minimize the federal role.

Three commenters felt that consideration of the need for low sodium water be on a case-by-case basis and made by a physician who can recommend an appropriate water source for patients.

The Agency concurs with the commenter in that in order for physicians to best advise their patients on their dietary intake, the physicians would need to know the sodium concentration of the drinking water.

Two commenters stated that sodium in water is less than five percent of the daily intake, and controlling the contribution from drinking water would have no effect on the intake of most people.

The NAS (1977) states that 40 percent of the population would benefit from a total sodium ion intake not greater than 2000 mg/day. Water containing more than 50 mg/liter of sodium (not uncommon), assuming a two liter daily consumption, would contribute more than five percent of the daily sodium intake to the population abiding by such a diet. In addition, three percent of the population is on sodium-restricted diets.

Two commenters stated that acculturation, or life stresses, not sodium, are most associated with differences in blood pressure and hypertension, when comparing unacculturated with acculturated groups of people.

Contrary to the commenters' statements, the NAS found that increased sodium intake was most consistently associated with increases in blood pressure, more than the level of acculturation, in studies of unacculturated versus acculturated groups (NAS, 1977). EPA does not imply that sodium is the sole etiologic agent in the development of hypertension. However, increasing evidence supports that excesses of sodium intake are implicated as one important factor in the development of high blood pressure in susceptible people. There may be several important factors which interact to produce clinical hypertension, including inherited susceptibility, excessive sodium intake, psycho/socio/cultural stress factors, and other as yet unknown factors.

One commenter noted that the FDA Committee on GRAS (Generally Recognized as Safe) substances is reviewing sodium and EPA should wait for that review to be completed.

EPA believes sufficient evidence currently exists to implicate excess sodium as a health risk for some individuals and that the monitoring are thereby appropriate.

One commenter stated that public notification could promote self-imposed sodium restricted diets which can be dangerous. Another commenter stated that sodium is a necessary nutrient and that it cannot be considered undesirable in the normal diet.

EPA recognizes that sodium is a nutrient but most Americans consume sodium greatly in excess of that amount needed for good nutrition. Evidence for this is provided in the NAS report "Drinking Water and Health (1977)." The minimum daily requirements for sodium are so low (2.3 mg Na/100 kilocalories (K cal) food for normal adults—see American Academy of Pediatrics, Vol. 53, No. 1, January 1974, pg. 115) that it is virtually impossible to restrict one's diet to below the normal daily requirement. According to the NAS, it is difficult to constrict one's diet to less than 460 mg of sodium per day which is about 5 times the minimum daily requirement (considering a daily intake of 4000 K cal).

Normal daily intake for most consumers is in the 5-10 grams/day. The amendment allows for people to be informed of the sodium levels in their drinking water and thus help regulate their sodium intake.

One commenter questioned the validity of EPA relating animals studies to humans to support the sodium monitoring requirements. The commenter felt that it was inappropriate for EPA to prefer to a study in the Statement of Basis and Purpose which indicated that a high sodium intake in genetically susceptible rats causes hypertension, and which also indicated that when hypertension becomes established in these rats it is not corrected by reducing sodium intake.

It is generally accepted among scientists that health risks associated with effects of chemical intake in animals, when properly qualified, are applicable to man (NAS, 1977). A number of animal species respond similarly to humans in particular pathological states but certainly *not all* as is the case with the study cited. There are no animals which can represent man as a perfect model. The clinical and epidemiologic evidence presented in the Statement of Basis and Purpose, support the animal studies cited, which suggest that excess sodium intake contributes to hypertension in humans.

One commenter suggested that the use of home water softeners and the subsequent introduction of sodium should be evaluated for their health significance.

EPA acknowledges that more information is needed on the sodium concentration of waters softened by units in the home and the health significance of softening water at home. EPA is currently sponsoring such a study. Limited information is available in the Statement of Basis and Purpose.

Three commenters stated that there is no evidence that sodium in drinking water presents a risk to the healthy consumer; two of these stated that the only risk is to persons on sodium restricted diets (less than 500 mg/day).

There is some evidence from epidemiologic studies that higher concentrations of sodium in drinking water may be associated with higher blood pressure in school children when compared with children of similar age in a community with lower sodium in its drinking water supply. The higher blood pressures may continue to be higher than those of other persons of the same age through life and result in clinical hypertension. In addition, infants, children and women during pregnancy are considered healthy consumers and may be more sensitive to risk from excesses of sodium (NAS 1977).

Four commenters questioned the significance of sodium intake in cardiovascular disease, particularly hypertension. Specifically, commenters stated the following: the proposed amendment was not supported by clear evidence of a health concern or risk; there have been no cases of low sodium intake preventing hypertension or high intake definitely causing it; there is insufficient evidence to demonstrate a causal connection between sodium and hypertension; sodium is one of many influences in hypertension; the epidemiologic studies fail to support the

hypothesis that salt consumption is a major factor in hypertension; and reducing dietary sodium is not an appropriate treatment for hypertension according to the medical literature. Finally, it was stated that mortality rates from cardiovascular disease were lower in areas with high water mineralization, high hardness, and high sodium, and were higher in areas with low sodium.

Evidence that sodium in excess of optimal concentrations contributes to the development of hypertension is a result of clinical studies, epidemiologic studies, and animal experiments. Cases of low sodium intake found in pre-industrial societies have been associated with not only a relative absence of hypertension, but with no age-related increase in blood pressure. EPA agrees that sodium is not the sole causal agent in the development of hypertension, and its role in contributing to hypertension is controversial. Evidence supports sodium as one important factor in the development of higher blood pressure in susceptible individuals. It is also a contributing factor in the exacerbation of many other conditions.

Thus, the evidence supports monitoring to determine the sodium content of drinking water for the purpose of providing information which can be vital to the health of the consumer. The Statement of Basis and Purpose has been revised to include additional information in reference to the commenters' concerns. Additional evidence presented by the NAS (1977) is summarized and evidence from more recent studies have been incorporated into the revised Statement of Basis and Purpose.

One commenter suggested that the minimum required sampling frequency of three years should apply to systems using surface as well as groundwater sources; another preferred one year to apply for both source types.

EPA believes surface waters are more likely to have higher variability in sodium concentrations than groundwaters and a higher monitoring frequency is thus warranted.

One commenter suggested basing the required monitoring frequency on population, similar to the microbiological (coliform) monitoring requirement.

Coliforms indicate potential pathogens in water, an acute health risk. The potential for contamination to a raw water tends to increase as population density increases. High levels of sodium in water is a chronic rather than an acute health concern. Many locations serving large populations will be able to provide representative sodium concentrations with annual or once every three year sampling frequencies depending upon the source of water.

Two commenters thought that more than 18 months should be allowed for implementing the sodium monitoring requirements; however, another commenter suggested that since no treatment modifications would be needed to meet an MCL, the effective date for meeting the requirements should be decreased to two months following promulgation.

EPA is strongly urging the States to adopt these requirements to minimize the federal enforcement role in primary States. EPA

believes that 18 months should provide sufficient time for States to adopt these requirements and thus, the effective date of the regulations is 18 months following promulgation. All systems must complete the first round of sodium monitoring and reporting requirements within 12 months following the effective date.

Several commenters expressed a need for specifying the sampling point to prevent non-representative data; for example, this could occur at points preceded by a home softening unit.

EPA recognizes that representative samples are essential; thus, the sodium monitoring requirements state that representative samples of the distribution system should be taken. States are encouraged to work cooperatively with the public water systems in selecting representative sampling locations. The amendment has thus not been changed.

Two commenters thought that EPA underestimated the cost impact of the proposed sodium amendment on water suppliers. They indicated that EPA had not included notification costs and that the single sample cost of \$5/sample was too low.

The direct public notification requirement has been deleted and costs for notifying the appropriate health agencies and officials should be negligible. The utility should not undergo any additional field sampling cost since sodium can be monitored in conjunction with other inorganic chemicals as required by the NIPDWR. Recent estimates by commercial laboratories range from \$5 to \$15 per sodium analysis and the economic analysis has been revised based upon \$10 per sample.

One commenter stated that the requirements regarding public notification and reporting of data to the State or EPA was unclear.

EPA believes that the amendment has been stated clearly and succinctly. Many commenters have not understood that States are not required to adopt the amendment. This led to some confusion and criticism in the wording of the reporting requirements in the proposed amendment. Under the SDWA, States are only required to comply with an MCL or a treatment technique requirement, neither of which EPA believes to be currently appropriate for sodium.

One commenter considered Section 141.41(c) to be redundant to Section 141.41(b) regarding the notification requirement to EPA and/or the State.

Section 141.41(b) requires the supplier to report the results to EPA and/or the State. Section 141.41(c) requires the supplier to notify local and State public health agencies of the sodium levels in water and to send a copy of such notice to EPA or the State. The purpose of Section (c) is to ensure that the local and State public health agencies are notified. The regulations provide that notification of the public health officials by the public water system can be waived by the State if the State provides this notification.

One commenter alleged that the amendment does not comply with Section 1401 in the Safe Drinking Water Act for primary drinking water regulations which requires either an MCL or treatment technique.

The amendment is not a primary drinking water regulation. The amendment is authorized under Section 1414(c) and 1445 of the SDWA.

One commenter indicated that if more than annual sampling is required notification should not be mandatory until a representative average concentration is determined.

A provision has been added such that an average value per compliance period can be reported either to EPA or to the State.

One commenter alleged that the atomic absorption graphite furnace technique is subject to appreciable error and needs to be further investigated.

The method has been carefully evaluated by EPA and has been included as an approved method with specific limitations on the concentration levels of sodium to be analyzed.

One commenter questioned EPA's legal right to request monitoring for sodium suggesting that sufficient data are already available from health agencies to inform the public and that more monitoring is not necessary to evaluate the health risk.

These monitoring requirements are intended to provide information on sodium levels in drinking water so that physicians may take this information into consideration. Many water supplies are currently not monitoring for sodium, nor have they conducted monitoring previously.

Non-Community Water Supply Systems

141.11 Maximum Contaminant Levels for Inorganic Chemicals—Nitrates

Twenty commenters indicated various concerns regarding the amendment to the non-community nitrite MCL. Two of the commenters expressed their support for allowing the non-community nitrate MCL of 10 mg/l to be exceeded under certain circumstances up to 20 mg/l. On the other hand, two other commenters felt that this provision would be unwise since there is no guarantee that children under six months of age would not be exposed to this water.

As discussed in the preamble, the conditions for exceeding the non-community nitrate MCL are being established in recognition of the fact that certain non-community systems, such as industrial facilities, normally provide water only for adult populations. The specific conditions were established to provide a measure of safety that water would not be available to infants. As a final safeguard, the maximum level of 20 mg/l was set because the occurrence of methemoglobinemia in infants increases rapidly at nitrate levels above 20 mg/l. Finally, use of this amendment is not automatic in that States are expected to make case-by-case determinations based upon an evaluation of all pertinent factors. Thus, the Agency feels that the amendment is appropriate and provides adequate safeguards.

Two commenters recommended that the conditions for allowing the nitrate levels up to 20 mg/l for non-community water supply systems to exceed 10 mg/l should be established by the States rather than be mandated by EPA.

This amendment will provide additional latitude to States in regard to implementing the nitrate MCL for noncommunity systems. It is expected that States will evaluate all appropriate factors for each public water system including the conditions set forth in the regulations before making a determination. While conditions have been appropriately set by EPA for implementation of the nitrate MCL, States can establish other conditions provided they are not less stringent than the conditions established by EPA.

One of the commenters suggested that the public notice posted should include information about the availability of alternative water supplies with nitrate levels below 10 mg/l.

The SDWA does not provide for EPA to require the inclusion of information regarding the availability of alternative water supplies in a public notice; however, the Agency recognizes this as a desirable practice, and therefore, the States should encourage the water suppliers to include this kind of information in the notices.

Another commenter felt that continuous posting of the public notice was unnecessary.

Because of the transient nature of the population using the water supply, only continuous posting of the fact that nitrate levels exceed 10 mg/l would assure that water is not consumed by sensitive populations.

Two commenters noted that the requirement to notify local physicians is unnecessary. One reasoned that local physicians would not see the patients affected by the nitrates while the other felt that notification of local physicians would be burdensome in large metropolitan areas. An additional commenter suggested that the Agency provide a better definition for the term "local physician."

These concerns have been carefully reviewed and it has been determined that the most effective method of notifying physicians would be through the local and State public health agency. Thus, the amendment has been changed such that public water systems must notify local and State public health authorities. Local health authorities are encouraged to notify local physicians since consumption of water by infants with high concentrations of nitrates for as short a period as a day may result in the occurrence of methemoglobinemia. This information will facilitate rapid diagnosis and treatment for patients in case they are affected.

One commenter recommended that this amendment should also apply to small community water supply systems.

The Agency has carefully evaluated the merits of this recommendation and in recognition that the risks of methemoglobinemia predominate in children under six months of age, amendments to the existing regulations will be proposed in a separate rulemaking that would extend this amendment to community water systems that do not include children in this age group.

One commenter felt that nitrate levels up to 50 mg/l should be allowed for non-community systems.

Methemoglobinemia has been shown to occur in populations consuming water having

nitrate levels ranging between 10 and 20 mg/l. However, with levels of nitrate exceeding 20 mg/l, the incidence of methemoglobinemia rapidly increases. In addition, recent data has suggested relationships between gastrointestinal cancer and nitrates and thus, a maximum level for nitrates is appropriate.

Ten of the commenters suggested that the absence of nitrite in the water as a condition of relaxing the nitrate level should be deleted. One of the reasons cited was that the analytical test for nitrites is extremely sensitive and in most cases where nitrates exceeded 10 mg/l, nitrites would be measurable; thus, this requirement could rarely, if ever, be met by the non-community water system. Other commenters noted and suggested that a "realistic" nitrite limit be one mg/l. An alternative suggested was that nitrites be limited to the detection limit of available and approved analytical techniques; others noted that the Agency has not established an MCL for nitrite, and, therefore, in applying this condition, EPA is essentially setting an MCL without due process.

As pointed out by the commenters, the nitrate analytical method is sensitive. Nitrite in drinking water can be determined by the colorimetric method listed as Method 354.1 in "Methods for Chemical Analysis of Water and Wastes," EMSL, EPA, 1979, or Method 420 in "Standard Methods for the Examination of Water and Wastewater," 14th Edition, APHA, AWWA, WPCF, 1975. The spectrophotometric version of this method is capable of detecting nitrite concentrations below 0.01 mg/l, while visual comparisons may be somewhat less sensitive.

The health effects of nitrite is the same as nitrate, except that the direct ingestion of nitrite would have a more immediate and direct effect on the infant because the bacterial conversion step in the stomach would be eliminated. Nitrite, however, rarely occurs in drinking water at significant concentrations, since it is usually oxidized to nitrate. When it does occur, it is usually the result of gross contamination by sewage. In such cases the water would be unacceptable for use and would not meet the coliform standard. Deletion of the nitrite requirement is appropriate because of the safeguards which the supplier must meet before becoming eligible to exceed the 10 mg/l. These include that only infants under 6 months of age will not have access to the water, continuous posting of the fact that nitrate levels exceed 10 mg/l and local physicians being so notified, and that no adverse health effects shall result. However, since it is expected that States will make a judgment regarding applicability of this amendment on a case-by-case basis based upon considerations of all relevant factors, including the level of nitrites. In general, levels of nitrite should not exceed one mg/l.

Four of the commenters recommended that the statement "no adverse health effect will result" as a condition for allowing the nitrate level for non-community water supply systems to exceed 10 mg/l be either defined or deleted.

No adverse health effects would result if the water system is in compliance with the other conditions set forth in this amendment.

The condition has been retained as the final safeguard in that it is left as general guidance as a contingency if the other conditions are not met.

141.21(c) Microbiological Contaminant Sampling and Analytical Requirements

The agency received eight comments regarding microbiological contaminant sampling and analytical requirements. Five commenters supported this amendment. Of the three commenters objecting, one felt that non-community water systems should not be allowed to reduce coliform monitoring unless a recent (i.e. past year) coliform sampling indicated the system to be in compliance with the NIPDWR. The other two commenters opposed this amendment on the basis that the existing quarterly sampling requirement for non-community systems already provides only minimal information about the microbiological quality of the water, thus, sampling beyond quarterly intervals is not sufficient. One of these commenters suggested increasing the frequency of the microbiological monitoring for non-community water supply systems rather than decreasing it.

The amendment allows the States to exercise their discretion on a case-by-case basis to reduce or increase the sampling frequency for microbiological contaminants. The decision of the State would be based upon the existence of historical data regarding the bacteriological quality of water and the results of sanitary surveys. Thus, the concerns of the commenters will be taken into account by the State in evaluating each system's requirements on a case-by-case basis; therefore, no change to the amendment is necessary.

141.22 Turbidity Sampling and Analytical Requirements

A total of nineteen comments were received regarding this amendment. Five of the commenters supported this amendment. Three additional commenters endorsed the amendment; however, they felt that the administrative requirements associated with the reduction of the turbidity monitoring requirement would impose an additional burden to the State.

This amendment authorizes the States to use their discretion to reduce turbidity monitoring for non-community surface water supplies where the State determines that no unreasonable health risk exists. It is expected that States would evaluate all appropriate factors on a case-by-case basis to determine the appropriate monitoring frequency. This may result in an additional burden but in general the provision allows latitude and will be implemented as resources permit.

Two commenters that supported this amendment also stated the following: one recommended the filtration of all surface water sources, while the other noted that reduction of the turbidity monitoring frequency used should be contingent upon filtration and disinfection of the water.

Because of the vulnerability of surface waters to contamination from both microbiological and particulate matter, the Agency believes that surface water systems should rely on the installation and operation

of appropriate water treatment, including coagulation, sedimentation, filtration and disinfection to protect the public health from contamination of drinking water sources.

Although this amendment allows latitude in the monitoring frequency for turbidity specifically for non-community water systems, reducing the monitoring frequency will only be permitted where disinfection is practiced, and where a disinfectant residual is maintained in the distribution system.

One commenter supporting this amendment recommended the establishment of additional MCLs based upon the materials making up turbidity, such as clays or colloids.

Because of the numerous sources of turbidity, analytical procedures determining each individual type of materials contributing to the turbidity would be tedious and expensive. EPA feels the turbidity MCL adequately covers this concern.

Two commenters dealt with the Interstate Carrier Water Systems (ICWS). One of these commenters objected to the requirement for measuring turbidity in ICWS, while the other felt that the language of the amendment should be changed to allow EPA in addition to a State to reduce turbidity monitoring requirements for ICWS.

Regarding turbidity sampling in ICWS, the Agency is currently examining policy and guidance in this matter.

However, until a resolution is reached, the regulations will continue to be applicable to them. In instances where the State is not granted primacy, EPA will exercise authority to evaluate turbidity monitoring requirements for ICWS where appropriate.

Five comments from State agencies expressed their opposition to this amendment. These commenters felt that the turbidity monitoring requirements for non-community systems should not be reduced since both consumers in community and non-community are similarly susceptible to risks of improperly treated drinking water. It was also pointed out that in addition to health considerations, turbidity monitoring is an important value in monitoring treatment plant performance. Other commenters felt that turbidity monitoring for non-community systems should be as stringent as for community systems due to poor water sources, fluctuation in water quality and demand and the likelihood of less qualified supervision and management.

This amendment applies only to systems that practice disinfection and maintain an active disinfectant residual. In addition, it is expected that States will evaluate all other appropriate factors in making the determination. Thus, the Agency feels that adequate safeguards to protect the consumer's health have been provided. In instances where the State determines that reduction of the turbidity monitoring frequency would jeopardize the population at risk due to poor water sources, fluctuation in water quality or poor management and water treatment performance, the State has the authority not to reduce the turbidity monitoring frequency; if it is found necessary the State upon its discretion may require the

water supplier to increase turbidity monitoring requirements.

The monitoring frequency determined by the State should reflect anticipated situations where turbidity may be elevated. In making this determination, States should perform a sanitary survey, as well as consider whether the area served by the public water system has a history of waterborne disease and whether the system and raw water source of the system is protected from significant microbiological contamination.

Two other commenters recommended that reduction of the turbidity monitoring frequency should be extended to small community water systems.

The Agency feels that extending the option of reduced turbidity monitoring for small surface community supplies is not appropriate due to the non-transient nature of the population.

141.23 Inorganic Sampling and Analytical Requirements

Two comments were received regarding the extension of the sampling date for nitrate. One of these commenters supported the extension of the sampling date by one year while the other felt that the additional time allotted is not sufficient to allow for the recruitment of personnel to comply with the amendment. This commenter recommended that the sampling date for nitrates be extended to June 1982.

The date has been extended to December 24, 1980, which is an additional six months beyond the one year extension contained in the proposal. The Agency feels that an 18 month extension provided for nitrate sampling is sufficient considering the total time made available between the promulgation of the NIPDWR in December 1975 and the final date of December 1980.

141.32 Public Notification

Seven comments were received regarding public notification for non-community water supply systems. One of the commenters supported the amendment without any reservations. Another commenter felt that non-community systems should not be required to post notices for variances and exemptions or of failures to meet variance and exemption schedules. The commenter noted that by granting a variance or exemption, the regulatory agency has made a judgment that there is no unreasonable risk to health under the conditions that exist for that water supply, thus posting such notice would cause confusion rather than serve any useful purpose.

Section 1414(c) of the Safe Drinking Water Act (SDWA) requires that a public water supply system give notice to persons served by it if it is subject to an exemption or variance. Although the SDWA requires that such notice be given not less than once every 3 months, the Agency feels that only by continuous notification would the transient users be informed about the existence of variances and exemptions.

Two commenters suggested that if a non-community system fails to meet an applicable

MCL, it should be closed, and until the problem is corrected water should be provided to the public from an alternate source.

Any violation of an MCL creates some risk to the public health. However, the SDWA authorizes the granting of variances or exemptions if there is no unreasonable risk to health. Closure of a water supply system is required only in instances where the consumption of the water poses an imminent danger to health. By law, no variance or exemption would be granted to such a water supply system.

One commenter recommended that the posted notice should include a description of the availability of an alternate source of safe water.

There is no provision in the SDWA to include in the public notice information about the location of alternate water supplies. However, such information may be included at the discretion of the State or the supplier. The Agency encourages this practice as well as the provision of water from an alternate water source to the public, if feasible, until the deficiencies are corrected at the existing water supply.

One of the commenters suggested that notification of the public should not be continuous but rather limited to the period during which deficiencies in the water quality exist.

The amendment limits the duration of posting of compliance failures to the violation period by stating that "... the supplier of the water shall give notice by continuous posting ... as long as the failure ... continues."

One commenter opposed that public notification should be limited to the duration of the variance granted to the non-community water supply.

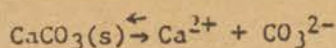
The amendment also includes a requirement for the continuous posting of violations of the NIPDWR as long as they continue.

Appendix B—Measurement of Corrosivity Related Parameters

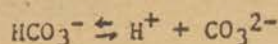
The pH at which a water is just saturated with calcium carbonate is known as the pH of saturation, or pH_s . The Langelier saturation index¹ is defined as the actual pH minus pH_s . A negative index indicates a tendency to dissolve calcium carbonate and a positive index indicates a tendency to deposit calcium carbonate. This index is not related directly to corrosion, but deposition of a thin, coherent scale may be protective. Thus a slight positive index is frequently associated with non-corrosive conditions, whereas a negative index indicates the possibility of corrosion.

To calculate the saturation index, it is necessary to determine the methyl orange alkalinity, calcium ion concentration, pH , temperature, and total filtrable residue.

1. Calculation. The value of pH_s can be calculated, with good precision, by using the equilibrium expressions for the solution of calcium carbonate and the second hydrolysis of carbonic acid:



$$K_s = (\text{Ca}^{2+})(\text{CO}_3^{2-}) \quad (1)$$



$$K_2 = \frac{(\text{H}^+)(\text{CO}_3^{2-})}{(\text{HCO}_3^-)} \quad (2)$$

Dividing Equation 1 by Equation 2 and rearranging gives:

$$(\text{H}^+) = \frac{K_2}{K_s} (\text{Ca}^{2+})(\text{HCO}_3^-) \quad (3a)$$

or

$$\text{pH}_s = \text{p}(\text{Ca}^{2+}) + \text{p}(\text{HCO}_3^-) + \text{p}(K_2/K_s) \quad (3b)$$

Values of conditional equilibrium constants may be obtained from the literature.²⁻⁵

Accounting for the effect of temperature and ionic strength on the equilibrium constants, Larson⁶ formulated the expression for the pH at calcium carbonate saturation, pH_s , as:

$$\text{pH}_s = A + B - \log(\text{Ca}^{2+}) - \log(\text{alkalinity}) \quad (4a)$$

where calcium ion concentration and alkalinity are expressed mg/l as CaCO_3 . Values for the constants and logarithms in Equation 4a are given in Tables 203:I through III. This method of calculation is adequate for waters having a pH_s of 9.3 or less. Above pH_s 9.3, the bicarbonate alkalinity must be used rather than total alkalinity. This can be determined with a nomograph such as that reported by Dye⁶.

Table 203:I.—Constant A as Function of Water Temperature

Water temperature C	A ¹
0.....	2.60
4.....	2.50
8.....	2.40
12.....	2.30
16.....	2.20
20.....	2.10
25.....	2.00
30.....	1.90
40.....	1.70
50.....	1.55
60.....	1.40
70.....	1.25
80.....	1.15

¹ Calculated from K_s as reported by Harned and Scholes⁷ and K_2 as reported by Larson and Buswell.² Values above 40°C involve extrapolation.

Table 203:II.—Constant B as Function of Total Filtrable Residue

Total filtrable residue mg/l	B
0.....	9.70
100.....	9.77
200.....	9.83
400.....	9.86
800.....	9.89
1,000.....	9.90

Table 203:III.—Logarithms of Calcium Ion and Alkalinity Concentrations

Ca^{2+} or alkalinity mg/l CaCO_3	Log
10.....	1.00
20.....	1.30
30.....	1.48
40.....	1.60
50.....	1.70
60.....	1.78
70.....	1.84
80.....	1.90
100.....	2.00
200.....	2.30
300.....	2.48
400.....	2.60
500.....	2.70
600.....	2.78
700.....	2.84
800.....	2.90
900.....	2.95
1,000.....	3.00

For example, for a water having a calcium ion concentration of 200 mg/l as CaCO_3 , an alkalinity of 60 mg/l as CaCO_3 , a temperature of 16 C, and a total filtrable residue of 650 mg/l, this equation is solved:

$$\text{pH}_s = 2.20 + 9.88 - 2.30 - 1.78 = 8.00 \quad (4b)$$

If the measured pH of this water is 9.0, the saturation index is 9.0—8.0 or +1.0, and the water is supersaturated with respect to calcium carbonate.

The pH_s value of 8.0 means that the water will neither dissolve nor precipitate calcium carbonate at that pH. While it does not indicate specifically anything about the corrosion of any metal in contact with the water, it is widely assumed that maintaining the water pH above the pH_s will result in the deposition of a protective coating of calcium carbonate on distribution system piping. Frequently, this does not occur because of non-uniform deposition or sloughing of materials from pipe walls. The formation of protective calcium carbonate coatings may be inhibited further by the application of polyphosphates as sequestering agents to the finished water.

Additional aids for the calculation of the saturation index are available.⁸⁻¹³ Particularly useful is the Caldwell-Lawrence diagram,¹³ which facilitates estimation of chemical dosages for softening as well as equilibrium conditions.

The pH of saturation with respect to calcium carbonate frequently has been estimated experimentally by equilibrating chips of calcium carbonate with a given water (marble test). This test suffers from the facts that equilibrium may not be attained and the partial pressure of carbon dioxide in the atmosphere over the sample may influence the results adversely.

Another useful measure of calcium carbonate saturation is the driving force index, or DFI, which was defined by McCauley¹⁴ as:

$$\text{DFI} = (\text{Ca}^{2+}) \times (\text{CO}_3^{2-}) / K_s \times 10^{10}$$

Both calcium and carbonate concentrations are expressed as mg/l as CaCO_3 .

The DFI is easily calculated from the saturation index as follows:
 $\text{DFI} = 10^{(\text{SI})}$

This value is not a logarithm but a simple ratio of the existing ion product to that which would exist at equilibrium. A value of 1.0 indicates equilibrium, values above 1.0 indicate the possibility of calcium carbonate deposition and values below 1.0 indicate a tendency to dissolve calcium carbonate and possible corrosion.

References

1. Langelier, W. F., 1936. "The Analytical Control of Anticorrosion Water Treatment." J. Amer. Water Works Assn. 28:1500.
2. Moore, E. W., 1938. "Calculation of Chemical Dosages Required for the Prevention of Corrosion." J. New England Water Works Assn. 52:311.
3. Larson, T. E. and A. M. Buswell, 1942. "Calcium Carbonate Saturation Index and Alkalinity Interpretations." J. Amer. Water Works Assn. 34:1667.
4. Langelier, W. F., 1946. "Effect of Temperature on the pH of Natural Waters." J. Amer. Water Works Assn. 38:179.
5. Larson, T. E., 1951. "The Ideal Lime-Softened Water." J. Amer. Water Works Assn. 43:649.
6. Dye, J. F., 1952. "Calculation of the Effect of Temperature on pH, Free Carbon Dioxide, and the Three Forms of Alkalinity." J. Amer. Water Works Assn. 44:356.
7. Harned, H. S. and S. R. Scholes, Jr., 1941. "The Ionization Constant of HCO_3^- from 0 to 50°." Am. Chem. Soc. 63:1706.
8. Langelier, W. F., 1946. "Chemical Equilibria in Water Treatment." J. Amer. Water Works Assn. 38:169.
9. Hoover, C. P., 1938. "Practical Application of the Langelier Method." J. Amer. Water Works Assn. 30:1802.
10. Black, A. P., 1948. "The Chemistry of Water Treatment." Water Sewage Works. 95:369.
11. Hirsch, A. A., 1942. "A Special Slide Rule for Calcium Carbonate Equilibrium Problems." Ind. Eng. Chem., Anal. Ed. 14:178.
12. Hirsch, A. A., 1942. "A Slide Rule for Carbonate Equilibrium and Alkalinity in Water Supplies." Ind. Eng. Chem., Anal. Ed. 14:943.
13. Caldwell, D. H. and W. B. Lawrence, 1953. "Water Softening and Conditioning Problems." Ind. Eng. Chem. 45:535.
14. McCauley, R. F., 1960. "Use of Polyphosphates for Developing Protective Calcite Coatings." J. Amer. Water Works Assn. 52:721.

[FR Doc. 80-28105 Filed 8-26-80; 8:45 am]

BILLING CODE 6560-01-M